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Demographic Factors that Predict Cervical Cancer Screenings in Ohio Women with Disabilities

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ABSTRACT

Background: Cervical cancer screening (CCS) rates are lower for women with disabilities than for the general population. The purpose of this project was to describe cervical cancer screening rates in women with disabilities, living in Ohio, and explore the relationship of select demographic factors to cervical cancer screening participation.

Methods: A chart audit of 350 randomly selected women with disabilities, ages 20-80, enrolled in a statewide home care waiver program was completed.

Results: Less than half of the women (45.4%) had obtained a CCS within the last 3 years, compared to a rate of 82% for the general population of women in Ohio. Level of disability had a significant relationship with ($p < 0.05$) with being screened. Controlling for age and third party insurance, the odds of being screened decreased 20% with each additional activity of daily living (ADL) requiring assistance (OR=0.815, 95% CI = .696 - .953). Marital status, geographic location, and race were not significant predictors for CCS.

Conclusions: This study supports previous research indicating that extent of disability influences whether women with disabilities receive a cervical cancer screening. Future research should continue to explore possible reasons for the lower rate of utilization of CCS by women with disabilities, including the role that the primary care physician plays in this behavior.

Keywords: disabilities; cervical cancer screenings; pap smears

INTRODUCTION

Cervical cancer is a slow growing cancer that forms in the tissues of the cervix. Scientists have discovered that the primary risk factor for cervical cancer is having the Human Papillomavirus (HPV). HPV is a group of viruses that attack the cervix and is spread through sexual activity. There have been over 100 identified HPV viruses, 30 of these can infect the cervix, and about half of these 30 types are associated with cervical cancer. Approximately two thirds of the cases of cervical cancer are caused by the HPV-16 and HPV-18 types (Ohio Department of Health, 2007). Most HPV infections go away on their own, but if they do not, these viruses can cause cell changes. If cell changes are found early and treated, cervical cancer can be prevented (National Cancer Institute [NCI], 2009).

Several other risk factors are associated with developing cervical cancer. NCI (2009) reports that the average age of diagnosis is 48 years. Approximately 50% of the diagnosed cases were 35-54 years of age. Lack of regular pap tests also present a risk because precancerous cells are not caught at an early, treatable stage, and develop into cancer cells. Studies have shown that survival rates increase the earlier the cells are diagnosed and treated. Other risk factors noted were weakened immune systems, multiple sexual partners, beginning sexual activity at a young age, smoking, and exposure to diethylstilbestrol (DES).

Cervical cancer used to be one of the leading causes of death for women in the United States, but cervical cancer screenings, introduced in the mid-1900s, have proved successful in identifying cervical cancer at early stages when successful treatment is most likely to occur. The American Cancer Society reported that the cervical cancer death rate

declined by 74% between 1955 and 1992. The National Cancer Institute (2009) estimates that in 2009, 11,270 new cases of cervical cancer will be diagnosed in the United States and there will be 4,070 deaths from cervical cancer.

Despite the success of cervical cancer screenings, the Healthy People 2010 goal is to increase preventative pap tests to 90%. According to the 2008 Behavioral Risk Factor Surveillance System **(**BRFSS), 82% of Ohio females over the age of 18 reported having had a pap test within the last three years (Horner et al., 2009).

As the Unites States population ages in the coming years, disability will become even more prevalent and present increasing challenges to our healthcare systems. According to the CDC 2006 statistics, there are approximately 28.6 million women with disabilities in the United States. The data from the 2005 BRFSS indicates that 18.6% of adults in the US and 17.8% of the adults in Ohio are disabled. Data from the 2001-2004 State Cancer Registries indicated the age adjusted incidence rate of cervical cancer was 8.5 per 100,000 for the US and 7.8 per 100,000 for Ohio (State cancer registries, 2008). The age adjusted death rates from the same data set for 2000-2004 was 2.6 per 100,000 for both the US and Ohio (State cancer registries, 2008).

Women with disabilities are one of the more vulnerable population groups today. They are more likely to be African American, older, and have a lower socio economic status. Compared to the general population, they are more likely to acquire a secondary functional loss with the diagnosis of a new health condition; they often lack opportunities for health maintenance and preventative care; and they may need assistive devices for daily functioning. Accessibility issues to healthcare facilities, physicians, and transportation also contribute to their vulnerability.

Women with disabilities are less likely to utilize cervical cancer screenings than the general population. Parish and Huh (2006) report that 58% of disabled vs. 63% of the non-disabled received pap smears in the previous 12 months. In another study, adjusted odds ratios for cervical cancer screens revealed 79% for the disabled vs. 88% for the non-disabled population (Wei, Findley, & Sambamoorthi, 2006).

The relatively small amount of research about women with disabilities and preventative cancer screenings indicates that there are a number of barriers to obtaining screenings. Generally, these factors can be divided into (1) physician related knowledge, beliefs, and attitudes, and (2) women with disability knowledge, beliefs, and attitudes. Using the Health Belief Model as a basis, a logic map was developed to summarize the specific factors identified in research (see Figure 1). Studies have indicated that physicians lack the knowledge and/or comfort level of discussing sexually related information with women with disabilities; they do not know how to perform pap tests on women with certain disabilities; they appear unaware that women with disabilities may be sexually active; they are unable to make the facility accessible or lack the properly trained staff to assist with the woman's unique needs; and the insurance coverage does not allow for the increased time needed to complete preventative screenings. Studies have also indicated that women with disabilities often lack the knowledge that they are at risk of cervical cancer and what factors increase this risk; they are not well informed about sexually related information, in general; they believe that physicians lack enough information about sexuality and how it relates to their specific disability; they lack assertiveness in accessing their health care needs; they lack knowledge of accessible facilities and equipment for screenings; they encounter physicians who are rude to them

or refuse to care for them because of their disability; and transportation to health care settings is often a barrier. All of these issues then impact the woman's intention to be screened. If the woman encounters accessibility issues, rudeness from the health care provider, refusal of care; or has a negative experience with a screening, she is less likely to attempt a screening again. However, if the woman has a positive experience during a screening, receives encouragement from her physician or other health care worker, or receives follow up calls or prompts for the next screening, she is more likely to be screened again.

Since research about preventative screenings and women with disabilities is still in its beginning stages, trends for potential risk factors for the lower utilization rates of screening for women with disabilities are just beginning to emerge. Preliminary research suggests that demographic disparities, environmental barriers, knowledge barriers, and attitudinal barriers all impact utilization of cervical cancer screenings. A review of literature from the past ten years suggests that several demographic indicators appear to have some relationship to cervical cancer screening utilization. Age, extent of disability, insurance resources, and a regular source of healthcare most regularly have been cited as having a relationship to the likelihood of a woman with disabilities obtaining a screening.

The purpose of this study was to describe cervical cancer screening rates in women with disabilities, living in Ohio, and explore the relationship of select demographic factors to cervical cancer screening participation. (See Table 1 for summary of variables and definitions.)

Figure 1: Logic map for cervical cancer screenings for women with disabilities.

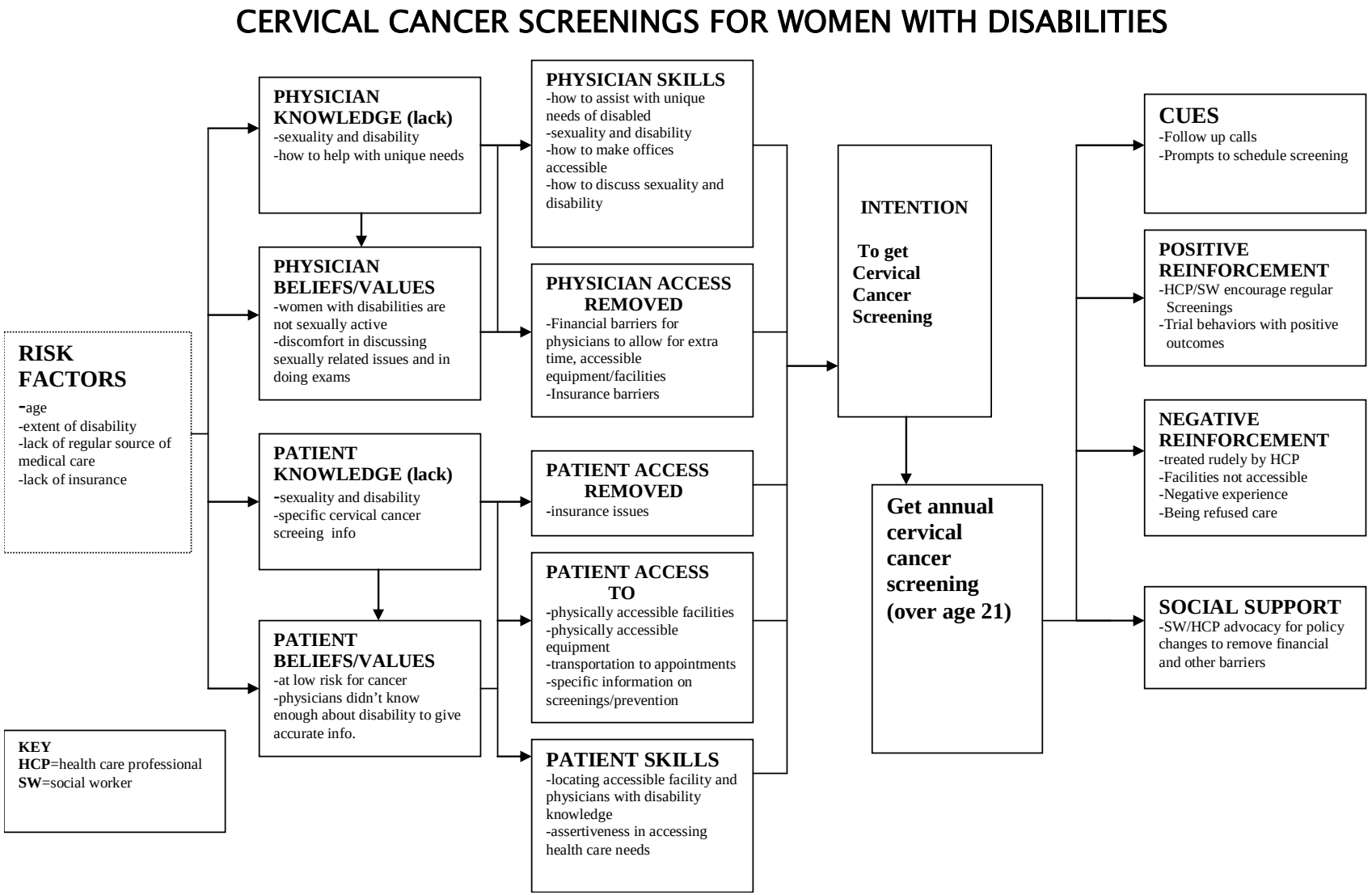

Table 1: *Dependent and independent variables, constitutive definitions, operational definitions, and level of measurement for each variable of interest.*

Variables	Constitutive Definitions	Operational Definitions	Level of Measurement
Cervical cancer screening rates *	Has had a cervical cancer screening within 3 years from last assessment	Participant self report of last cervical cancer screening as recorded in chart review	0=no screening within 3 years 1=screened within 3 years
Age	Age as of 7-1-2008	Chart review-DOB reported on last assessment	Age in years
Race	Race recorded on assessment	Chart review-race listed on assessment	Categorical 1-Caucasian 2-African American 3-Hispanic 4-Asian/Pacific Islander 5-Native American/Alaskan native 6-Southeast Asian 7-Other
Extent of Disability	Number of ADLs and IADLs participant needs assistance with from last assessment	Chart review of last assessment. The higher the number, the greater the disability	Interval -Mobility -Bathing -Grooming -Dressing -Toileting -Eating -Total IADLs
Geographical location	County of residence on last assessment	Chart review-Regional distinction from ODJFS (2005) based on listed county of residence	County 1-Appalachian 2-Rural Non-Appalachian 3-Metropolitan 4-Suburban
Marital status	Marital status reported on last assessment	Chart review of marital status on last assessment	Categorical 1-Single 2-Married 3-Separated 4-Divorced 5-Widowed
Funding source	Type of insurance reported on last assessment	Chart review of funding sources listed on last assessment	1-Medicaid only 2-Medicaid + Medicare 3-Medicaid + Private Insurance 4- Medicaid + Medicare + Private Insurance

Note: * denotes dependent variable

Delimitations

Delimitations of this study included the eligible participants, the age of those participants, and the assessment tool utilized. Only women who were active participants on the Ohio Home Care Waiver program on July 1, 2008, were eligible for inclusion in this study. There is no consistent agreement about the age for women to stop cervical cancer screenings. The researcher limited the study to women between the ages of 20-80 years old to include the maximum range of ages suggested by the American Cancer Society, American College of Obstetricians and Gynecologists, and the U.S. Preventative Services Task Force (CDC, 2009). The Patient Eligibility and Assessment Tool (PEAT) was used as the only source of information to determine level of disability.

Limitations

This study was limited by the information reported on the Patient Eligibility Assessment Tool (PEAT) and the accuracy of the assessor.

Women's self report of the last cervical cancer screening to the assessor may affect the accuracy of the results due to recall bias. In addition, this study did not consider the reason a pap test may not have been completed within the previous 3 years, such as having a hysterectomy, which may have provided more valuable information.

The PEAT is completed by many different assessors. The assessment of the level of assistance needed by the patient for activities of daily living (ADL) and instrumental activities of daily living (IADL) may have some variability due to assessor perceptions.

Only 11% of the sample had third party insurance. This may not have been a large enough sample to accurately predict the impact of insurance on the screening behaviors.

It was assumed that each woman in the study had a regular source of healthcare. However, there was no differentiation made between women who used a primary care physician and those that utilized a specialist for their primary care. This difference may have had an impact in the actual number of women who chose to get screened.

It was expected that geographic location of residence would impact the number of women who received cervical cancer screenings. The low number of women in the sample who lived in Appalachian or rural counties, however, may have impacted the results of the data analysis.

LITERATURE REVIEW

Cervical cancer

Cervical cancer is a slow growing cancer that forms in the tissues of the cervix. Women do not usually experience any symptoms in the early stages of the cancer. As the tumor grows larger, women may experience one or more of the following symptoms: abnormal vaginal bleeding, increased vaginal discharge, pelvic pain, or pain during sex.

Scientists have discovered that the primary risk factor for cervical cancer is having the Human Papillomavirus (HPV). HPV is a group of viruses that attack the cervix and is spread through sexual activity. There have been over 100 identified HPV viruses, 30 of these can infect the cervix, and about half of these 30 types are associated with cerival cancer. Approximately two thirds of the cases of cervical cancer are caused by the HPV-16 and HPV-18 types (Ohio Department of Health, 2007). "Most HPV infections go away on their own, but some may not. If HPV does not go away, it can cause cell changes. If cell changes are found early and treated, cervical cancer can be prevented" National Cancer Institute (NCI), (2009).

According to the NCI (2009), several other factors contribute to the risk of developing cervical cancer. The NCI did not indicate the importance of one of these factors over another. Risk was assumed to be a combination of the following factors.

Age: the median age at diagnosis for cancer of the cervix was 48 years of age. Approximately half of the women diagnosed were between 20 and 54 years of age (Horner et al., 2008).

Lack of regular pap smears: The literature does not define "regular". Pap smears assist in identifying precancerous cells in the cervix. Removal of these cells can prevent

them from becoming cancer cells. Cervical cancer is one of the most successfully treated cancers if caught in the early stages (American Cancer Society, 2009). For the years 1975-2006, the SEER stage distribution, based on Summary Stage 2000, indicates that 50% of cervix uteri cancer cases are diagnosed while the cancer is still confined to the primary site; 35% are diagnosed after the cancer has spread to regional lymph nodes or directly beyond the primary site; 11% are diagnosed after the cancer has already metastasized; and for the remaining 5% the staging information was unknown. The corresponding 5-year relative survival rates were 91.5% for localized; 57.7% for regional; 17.2% for distant; and 56.7% for unstaged (Horner et al., 2008).

Weakened immune system: women with HIV or women who take medications that can suppress the immune system are at increased risk.

Sexual history: women with multiple sexual partners, women having sex with a man who has had multiple sexual partners, having sex with an uncircumcised man, and having sex starting at a young age are at higher risk of contracting HPV.

Smoking: women who smoke, along with having known HPV, are at higher risk of developing cervical cancer.

Using birth control for over 5 years, along with having known HPV, places women at higher risk of developing cervical cancer.

Exposure to DES (diethylstilbestrol): women whose mothers took DES while carrying them are at higher risk. According to the CDC, this estrogen-like medication has been associated with a 40% increased risk of clear cell adenocarcinoma (CCA), a rare kind of vaginal and cervical cancer (Hatch, Palmer, Titus-Ernstoff, Noller, Kaufman, et al., 1998).

Cervical cancer screenings

The National Cancer Institute (2009) estimates that in 2009, 11,270 new cases of cervical cancer will be diagnosed in the United States and there will be 4,070 deaths from cervical cancer. Cervical cancer screenings, otherwise known as pap smears, are the primary tool used to identify pre-cancerous cells (Horner et al., 2008). In this test, cells are scraped from the cervix and examined under a microscope. Cervical cancer used to be one of the leading causes of death for women in the United States, but cervical cancer screenings, introduced in the mid-1900s, have proven successful in identifying cervical cancer at early stages when successful treatment is most likely to occur. The American Cancer Society reported that the cervical cancer death rate declined by 74% between 1955 and 1992. According to the SEER incidence and mortality information (Horner et al., 2008), use of cervical cancer screening has resulted in a decline of death from cervical cancer during the time period 1975-2005. For all races, from 1975-1982, there was a 4.4% decline in deaths; 1982-1995, there was a 1.6% decline in deaths; and 1995-2005, there was a 3.4% decline. All of these declines were considered statistically significant.

In the 2008 health report, it was reported that 75.6% of women over the age of 18 had obtained a cervical cancer screening within the last 3 years (National Center for Health Statistics, 2009). According to the 2008 BRFSS, 82% of Ohio females over the age of 18 reported having had a pap test within the last three years (Horner et al., 2009). This falls short of the Healthy People 2010 target goal which is 90%.

Women with disabilities

Women with disabilities are one of the most vulnerable population groups today. They are more likely to be African American, have lower socio economic status, and be older (Parish & Huh, 2006; Wei et al., 2006). Compared to the general population, they are more likely to acquire a secondary functional loss with the diagnosis of a new health condition; they often lack opportunities for health maintenance and preventative care; and they may need assistive devices for daily functioning. Accessibility issues to healthcare facilities, physicians, and transportation also contribute to their vulnerability.

One specific research outlined eight ways in which the health needs of persons with disabilities differ from the general population: (1) a thinner margin of health, which must be carefully guarded; (2) lack of opportunities for health maintenance and preventive health care; (3) an earlier onset of chronic health conditions; (4) with a new health condition, individuals may acquire a secondary functional loss; (5) individual may require more complicated and prolonged treatment; (6) may required sustained pharmacologic support; (7) may need durable medical equipment and other assistive technology; and (8) may require long-term services, including personal assistants (DeJong, 1997).

Women with disabilities are less likely to utilize cervical cancer screenings than the general population. Parish and Huh (2006) report that 58% of disabled vs. 63% of the non-disabled received pap smears in the previous 12 months, which was statistically significant. In another study, adjusted odds ratios for cervical cancer screens revealed 79% for the disabled vs. 88% for the non-disabled population (Wei et al., 2006). Research by Armour, Thierry, and Wolf (2009), indicated that women with a disability

were less likely than those without a disability to report receiving a pap test during the past 3 years (78.9% vs. 83.4%; $p < .001$). A study by Ramirez, Farmer, Grant, and Papachristou (2005), found that women with disabilities were 17% more likely to be noncompliant with routine cervical cancer screenings than the general population. In a qualitative study by Kroll, Jones, Kehn, and Neri (2006), it was found that those with physical disabilities had a decreased likelihood of receiving breast or cervical cancer screenings because of environmental and process barriers. "Persons with disabilities who do not receive adequate preventive care and routine health maintenance care may require more expensive tertiary care. They may also develop secondary conditions that may further limit their functioning, quality of life, and life expectancy" (Johnson & Woll, 2003). Healthy People 2010 established goals to address those with disabilities, specifically with the goal of preventing secondary medical conditions for people with disabilities and eliminating health care disparities between the disabled and the non-disabled.

As the Unites States population ages in the coming years, disability will become even more prevalent and present increasing challenges to our healthcare systems. According to the CDC 2006 statistics, there are approximately 28.6 million women with disabilities in the United States. The data for 2005 from the Behavioral Risk Factor Surveillance Survey indicates that 18.6% of adults in the US and 17.8% of the adults in Ohio are disabled. Data from the 2001-2004 State Cancer Registries indicated the age adjusted incidence rate of cervical cancer was 8.5 per 100,000 for the US and 7.8 per 100,000 for Ohio (State cancer registries, 2008). The age adjusted death rates from the

same data set for 2000-2004 was 2.6 per 100,000 for both the US and Ohio (State cancer registries, 2008).

Barriers to preventative screenings

There has been relatively little research on the area of utilization of cervical cancer screenings in the disabled population. What has been studied indicates that there are various barriers that women with disabilities face that contribute in some way to the underutilization of cervical cancer screenings. These barriers can be summarized as environmental barriers, process barriers, informational barriers, attitude barriers, and financial barriers (Schopp, Sanford, Hagglund, Gay, & Coatney, 2002). Environmental barriers include physical barriers like inaccessible buildings, doorways, and equipment (Andriacchi, 1997). Process barriers are those things like insufficient time for the unique needs to be addressed, lack of assistance for transfers onto the exam tables, and screenings not being recommended by the health care professional. Informational barriers include lack of disability knowledge on the part of the physician/health care provider and/or the woman with disabilities. Attitude barriers most often refer to poor attitudes from the health care professional such as disrespect, rudeness, and refusal of care. Financial barriers reported had to do with the type of insurance or the lack of any insurance for the consumer as well as the financial disincentives by insurance companies to allow the health care provider to make the accommodations needed to meet the needs of those with disabilities (Schootman & Jeffe, 2003; Kroll, Jones, Kehn, & Neri, 2006; Poulos, Balandin, Llewellyn, & Dew, 2006; Thierry, 2000).

Predictors of cervical cancer screenings

In a review of the literature from 1997-2008 for preventative screenings and women with disabilities, seven barriers consistently emerged: age, level of disability, regular source of healthcare, insurance, marital status, race, and physician-related issues.

Age

Age was not found to be a predictor alone, but did appear to have an impact on predictors when combined with other factors. Age and extent of disability appear to have a combined impact on a woman's intent to be screened. A study by Schootman and Jeffe (2003) on mammography utilization indicated that the older a person is, the less likely they are to get screened. Older age was also associated with a higher level of disability. Findings by Heflin, Pollak, Kuchibhatla, Branch, and Oddone (2006), and Wei, Findley, and Sambamoorthi (2006) found similar results. Additionally, a study by Ferrante, Gonzalez, Roetzheim, Pal, and Woodard (2000) found that each additional year of age was associated with a 3% increased odds of late-stage diagnosis (odds ratio [OR], 1.03; 95% confidence interval [CI], 1.02-1.05; P<.001).

Level of disability

There is strong support from many studies that indicate that the more severely impaired or disabled one is, the less likely they will be to obtain a cervical cancer screening. In the last ten years, approximately 30 studies reported findings of a relationship between level of disability and likelihood of preventative screenings. In a study looking at functional limitations (FL) and the Medicare population, disability was found to be a significant, independent risk factor (p<.001) for not receiving a pap smear. As the number of FL increased, the less likely they were to report having received a pap

smear (Chan et al., 1999). Another study noted that level of disability was associated with lower receipt of both mammogram and pap test, but this relationship was not always linear based on level of disability (Diab & Johnston, 2004). Chevarley, Thierry, Gill, Ryerson, and Nosek (2006) studied women 65 years or older and found utilization rates for cervical cancer screenings were 24.3% for those with 3 or more functional limitations vs. 33.7% for those women without functional limitations. Iezzoni, McCarthy, Davis, David, and O'Day (2001) found that those with severe lower extremity problems were significantly less likely to receive cervical cancer screenings ($P \leq .01$, AOR 0.6, 95% CI=0.4-0.9) than were those women with blindness, deafness, hand use difficulties, or mental health problems. Additional studies by (Schootman & Jeffe, 2003; Iezzoni, McCarthy, Davis, & Siebens, 2000; Thierry, 2000; Nosek & Howland, 1997; Heflin, Pollak, Kuchibhatla, Branch, & Oddone, 2006; Cheng et al., 2001) all indicated similar findings.

Regular source of healthcare

Having a regular source of healthcare appears to have a strong relationship with the likelihood of a woman completing preventative screenings. A regular source of healthcare means that a woman has a primary care physician that monitors her ongoing healthcare needs. A study by Parish and Huh (2006) indicated that women with disabilities were more likely than women without disabilities to have a regular source of healthcare. In comparing rates of utilization of cervical cancer screenings, Wei et al. (2006) reported that a woman with a disability who has a primary care physician is four times more likely to get screened than one without a regular source of care.

Insurance

The type of insurance available to women appears to have some relationship to cervical cancer screenings. Women with disabilities were reported to have similar or higher levels of insurance than the general population (Iezzoni, McCarthy, Davis, David, & O'Day, 2001). Women with insurance are more likely to get a cervical cancer screen (Wei et al., 2006) and having private insurance is an even stronger predictor of getting screened (Hiatt et al., 2001, as cited in Newmann & Garner, 2005). Lack of insurance was found to have a 60% increased odds of late-stage diagnosis (OR, 1.60; 95% CI, 1.07-2.38; *P*=.02). Having commercial health maintenance organization insurance was associated with a 46% decreased odds of late-stage disease (OR, 0.54; 95% CI, 0.30-0.96; *P*=.04) (Ferrante, Gonzalez, Roetzheim, Pal, & Woodard, 2000).

Marital status

In a study that analyzed disabled women who had obtained a pap smear within three years, 49% were married, 42% were widowed, divorced, or separated, and 8% were single. Ferrante et al. (2000) also found that being unmarried was associated with a 63% increased odds of late-stage diagnosis (OR, 1.63; 95% CI, 1.18-2.25; P=.003). Marital status and level of disability have been shown to have a relationship. A study by Chevarley et al. (2006) found that the more disabled one is, the less likely they are to be married. In looking at rates of marriage and functional limitations (FL), of those with 3 or more FLs, 47% were married compared to 55% for those with 1-2 FLs and 62.5% with no FLs.

Race

Race appears to be a factor in the discussion of preventative screenings, but no evidence was found to assume it as a predicting factor. Iezzoni et al. (2001) reports that prevalence patterns varied among the races for type of disabilities. African American women had the highest rates of upper and lower extremity mobility impairment, hand difficulties, and vision impairments, while white women had the highest rates of hearing and mental health problems. Women with disabilities were more likely to be African American than the non-disabled population (Wei et al., 2006). Benard, Lee, Piper, and Richardson (2001), as cited in Newmann and Garner (2005), report that cervical cancer screening rates are higher among Black women than White women, incidence and mortality rates of cervical cancer are higher among Black women. They also noted that in the U.S., "American Indians and Alaskan natives have the lowest cervical cancer screening rates and are the most likely to have an abnormal first pap test" (p. 65).

Physician-related issues

Physicians play a critical role in whether or not women with disabilities get screened. Findings by Ramirez et al. (2005) indicated that "a doctor's recommendation was a robust factor related to cervical cancer screening compliance" (p. 2061). Extent of disability and age appears to effect whether or not physicians will recommend cervical cancer screenings. The older and or more disabled are less likely to be offered screening (Heflin et al., 2006). Other barriers reported to effect utilization of screenings are attitudinal barriers, lack of knowledge and training in working with the disabled, feeling uncomfortable treating women with disabilities, lack of assistance for the needed treatment, lack of consultation time, inaccessible facility or equipment, and fear (NSW

Cervical Screening Program, 2004; Verger et al., 2005; Lurie, Margolis, McGovern, & Mink, 1998; Andriacchi, 1997).

Summary and purpose statement

The importance of preventative cancer screenings is well established. Research about preventative health care and people with disabilities is still in its infancy. Preliminary research suggests that demographic disparities, environmental barriers, knowledge barriers, and attitudinal barriers all impact utilization of cervical cancer screenings. Literature reviewed from the last ten years, suggests that age, extent of disability, insurance resources, and a regular source of healthcare most regularly have been cited as having a relationship to the likelihood of a woman with disabilities obtaining a screening (see Figure 1).

The purpose of this study is to explore the relationship between cervical cancer screening rates and age, race, extent of disability, county of residence, marital status, and funding sources in women between 20-80 years old with disabilities on the Ohio Home Care Waiver program.

METHODS

Design

The study was a correlation analysis with dependent variable (DV) of cervical cancer screening and independent variables (IV) of age, race, marital status, county of residence, funding source, and extent of disability.

Sample

The population for this study was females from the Ohio Home Care Waiver program who were age 20-80 years old and had a physical/medical disability. People with disabilities are identified as persons having an activity limitation or who use assistance to meet their everyday needs. The Ohio Home Care Waiver was chosen because it is one of the largest programs serving people with disabilities in Ohio. One agency, Carestar, manages the program, so each consumer throughout the state of Ohio has access to the same services and in the same manner, providing consistency. Each participant was assessed annually using the same tool and each had Medicaid insurance as a benefit of being on the program. Individuals on the Ohio Home Care Waiver are required to meet an intermediate or skilled level of care to be eligible. This means that the individual must either require assistance with at least two activities of daily living (mobility, bathing, dressing, grooming, toileting, or eating) or need skilled nursing. This eligibility is determined using the same tool each year, so there is a consistent method to determine eligibility each year.

Subjects were chosen from the Ohio Home Care Waiver program active enrollment list on July 1, 2008. There were 5,523 females active and eligible to participate in the study on this date. Carestar provided the researcher with an Excel

spreadsheet listing all 5,523 eligible female subjects. The following identifying information was included: name, date of birth, and county of residence. Each subject was assigned a random number utilizing the Excel random number generation function. The list was then sorted according to random number, and a random sample of 350 women was selected.

To estimate the required sample size (n), required for generalization of findings, the following formula (van Belle, G., 2002) was utilized, assuming a 0.30 pMin value for the dependent variable:

$$n = \frac{10}{P\ min} * (\#\ IVs) \quad OR \quad n = \frac{10}{0.30} * 6 = 200$$

Given the size of the population, the researcher decided to select a sample of 350 subjects for this analysis in order to better detect any true effects of the independent variables. Following data collection, it was discovered that true pMin for the sample was 0.45. Therefore, the sample size of 350 was more than sufficient.

Data Collection

Chart audit

A chart audit was completed of the sample group using the Patient Eligibility Assessment Tool (PEAT) from the Ohio Home Care Waiver program (see Appendix E). The PEAT assesses each individual's current medical, mental health, and functional abilities as well as all involved services in meeting these needs. This assessment tool was

completed at least annually for all active participants in the program to determine continued eligibility. The most recently completed assessment for each participant was used to gather data for this study. The following information was extracted for each participant from the chart, then coded in an Excel spreadsheet: age (in years), marital status, race, county of residence, extent of disability, type of insurance sources available, and whether the participant had a cervical cancer screening within the previous 3 years.

Each chart audit took approximately 10 minutes to complete and record. The researcher completed all chart audits in a period of approximately 3 months. No missing data was discovered for any of the chart audits. Upon completion of all chart audits, all information was de-identified and copied to a new Excel spreadsheet to use for statistical analysis.

Permission to use the PEAT was obtained from the Ohio Department of Job and Family Services/Bureau of Home and Community Services, and Carestar, the contracted agency responsible for the case management of the Waiver program (see Appendix A). Final IRB approval for this research was obtained June 11, 2009 (see Appendix B).

Cervical cancer screening

Researcher identified when each subjects last cervical cancer screening (CCS) was completed, based on the date recorded in each chart. If there was no date identified for the last screening, it was coded as a 0, or no screening within the last three years. For those women who identified that they had received a screening within the last 3 years, they were coded as having obtained the screening within 1 year of the assessment date, 2 years, or 3 years. After analyzing the descriptive data, a CCS recode variable was created for further statistical analysis. The recode combined all of those individuals who had

received a screening within 1, 2, or 3 years into one category (screened) and those not receiving a screening into the category of not screened. This analysis variable is an indicator of subject having been screened within 3 years or not, based on current CCS guidelines.

Age

Date of birth was obtained from the initial Excel spreadsheet of all subjects. For analysis, these were recoded into age by years and entered in a new column on the Excel spreadsheet. For descriptive analysis of the age distribution, a recode was created collapsing this data into decades in addition to individual years. Age was kept as a continuous variable for model building.

Race

Race was identified for each subject from seven categories, based on listings in the chart (Caucasian, African American, Hispanic, Asian/Pacific Islander, Native American/Alaskan native, Southeast Asian, Other). Only 5 subjects comprised races other than Caucasian or African American, thus, for statistical analysis, a race recode was created indicating Caucasian, African American, and Other (see Table 2).

Marital status

Marital status was recorded as single, married, separated, divorced, and widowed. After analysis of the descriptive data, the researcher recoded marital status into categories of single, married, and previously married for statistical analysis.

Geographical location

County of residence was recoded into regional distinction categories of Appalachian, Metropolitan, Rural Non-Appalachian, and Suburban, based on the March

2005 Ohio Family Health Survey completed by the Ohio Job and Family Services (see Appendix C). After univariate testing, these categories were recoded into two levels for further statistical analysis: Urban (Metropolitan, Suburban) and Rural (Appalachian, Rural Non-Appalachian). The researcher hypothesized that those from Appalachian areas would have a lower screening rate than those from other areas. The number of subjects in the Appalachian areas were too small to be able to detect any significance, so they were combined with the non-rural in an attempt to identify any significance that might be present.

Extent of disability

Extent of disability was recorded using two scales, Activities of Daily Living (ADLs) and Instrumental Activities of Daily Living (IADLs). ADLs include mobility, bathing, grooming, dressing, toileting, and eating. Mobility consisted of needing assistance with bed mobility, any type of transfers, and/or mobility with or without the use of adaptive equipment. Bathing required assistance to wash and/or dry any part of the body. Grooming required assistance with hair care, toothbrushing, and nail care. All three areas required assistance to be included in the grooming category. Dressing required assistance for any part of dressing, including undergarments, shoes, socks, or fasteners. Toileting assistance included assistance with changing diapers, catheters, emptying urinary bags, wiping, or other clean up. Eating assistance included assistance with cutting up food, assistance with getting the food onto the utensil, actually feeding the person, or preparing and administering tube feeds.

IADLs included the areas of shopping, meal preparation, environmental management, laundry, and accessing community. Shopping consisted of accompanying

the person to the store to obtain or carry items or running errands for the person. Meal preparation meant that someone else had to prepare or assist in preparing meals for the individual. This included cooking the meal or obtaining home delivered meals. Environmental management includes the tasks of cleaning the house, making or changing bed linens, caring for the yard/mowing, and doing heavy chores. Laundry includes all aspects of laundry such as washing, drying, folding, and putting clothes away. Accessing the community includes making telephone calls, arranging for and using transportation, and managing finances.

Data was recorded for both the specific ADLs and the combined number of IADLs. Analysis of the data revealed that level of IADLs was not a significant contributor to deciding level of disability because each woman in the sample needed assistance with at least 1 IADL, with the majority needing 2-3 IADLs. However, ADLs did appear to be a significant contributor in deciding level of disability. Given this insight, the individual ADLs were summed and each subject scored with a total number of ADLs. Extent of disability was then determined by the total ADL score of 0-6, with the extent increasing with the total number of ADLs required for assistance.

Type of insurance

Three potential insurance sources were coded: Medicaid, Medicare, and Third Party insurance (TPI). Each subject had access to Medicaid due to their eligibility for the waiver program. This information was coded into four categories to capture the possible combinations of insurance: Medicaid only, Medicaid + Medicare, Medicaid + TPI, and Medicaid + Medicare + TPI. The insurance hierarchy of payment was also considered in this model. Medical costs are always billed to third party insurance first, followed by

Medicare, and Medicaid is always the payor of last resort. These four levels of funding are important as there are typically more providers who will accept private insurance and Medicare than there are who will accept Medicaid, so these distinctions were expected to provide some useful insights. After analysis of these four levels of funding, it appeared that TPI had some influence, so these levels were recoded for further analysis into three levels as Medicaid only, Medicaid + Medicare, and Medicaid + TPI (see Table 2).

Table 2: *Final model of dependent and independent variables, constitutive definitions, operational definitions, and level of measurement for each variable of interest.*

Variables	Constitutive Definitions	Operational Definitions	Level of Measurement
Cervical cancer screening rates *	Has had a cervical cancer screening within 3 years from last assessment	Participant self report of last cervical cancer screening as recorded in chart review	0=no screening within 3 years 1=screened within 3 years
Age	Age as of 7-1-2008	Chart review-DOB reported on last assessment	Age in years
Race	Race recorded on assessment	Chart review-race listed on assessment	Categorical 1-Caucasian 2-African American 3-Other
Extent of Disability	Number of ADLs participant needs assistance with from last assessment	Chart review of last assessment. The higher the number, the greater the disability	Interval 0-6
Geographical location	County of residence on last assessment	Chart review-Regional distinction from ODJFS (2005) based on listed county of residence	County 1-Rural 2-Urban
Marital status	Marital status reported on last assessment	Chart review of marital status on last assessment	Categorical 1-Single 2-Married 3-Previously married
Funding source	Type of insurance reported on last assessment	Chart review of funding sources listed on last assessment	1-Medicaid only 2-Medicaid + Medicare 3-Medicaid + Private Insurance

Note: * denotes dependent variable

Data analysis

Descriptive statistics were calculated for all study variables. Following the descriptive analysis, each independent (predictor) variable was assessed for inclusion in the proposed full logistic regression model via univariate logistic regression analysis between the predictor variable and cervical cancer screening. Variables that had at least a modest correlation ($p < 0.25$) with cervical cancer screening were considered for inclusion in the preliminary full logistic regression model (Hosmer & Lemeshow, 2000). Selected independent variables were checked for collinearity. The full logistic regression models were assessed for goodness of fit using the Hosmer and Lemeshow test. All analysis was performed using SPSS for Windows, version 17.0 (now called PSAW).

RESULTS

Sample characteristics

Of the 350 women in the sample, the majority of the women were Caucasian (72.3%) or African American (25.4%). Just over half of the women were previously married (53.2%), with those never married comprising another 33% of the sample. The majority of women (80%) fell between the ages of 40-69 years old. Two-thirds (68.5%) of the women in this study lived in metropolitan or suburban areas. Medicaid was the only source of insurance for 42.9% of women and 52.6% of the women also had Medicare. Only 11.1% of the women also had some type of private insurance. A breakdown of the sample characteristics can be found in Table 3.

The majority of the women in this study required assistance with at least 1 ADL. Of the total sample, four women did not need hands on help for an ADL. Over half of the women (52.5%) needed assistance with 3-4 ADLs, with bathing and dressing being the most common. The areas where women needed the most assistance were bathing (92.9%), dressing (89.7%), mobility (74.0%) and grooming (64.3%). Details of the ADLs can be seen in Table 4.

Less than half the women (45.4%) had received a cervical cancer screening within the last 3 years. Women between the ages of 40-69 years accounted for 77.4% of the women who had been screened within 3 years. Most of the women were either Caucasian (70.4%) or African American (27.1%). Over three-fourths of those screened were previously married (50.7%) or single (35.2%). Half of the women screened lived in a metropolitan county (52.2%). Extent of disability was similar to the overall sample, with approximately half of the women (48.5%) requiring assistance with 3-4 ADLs.

Type of insurance also mirrored the rates for the total sample, with Medicaid only (41.5%) and Medicaid + Medicare (44.7%) being the most common insurance coverage.

Table 3: *Demographic characteristics of a sample of women on the Ohio Home Care Waiver Program.*

	Cervical cancer screening within 3 years (N = 159)		*No cervical cancer* screening within 3 years (N = 191)		*Total* (N=350)	
Characteristic	n	%	n	%	n	%
Age						
20-29	16	10.0	16	8.4	32	9.2
30-39	17	10.7	16	8.4	33	9.4
40-49	37	23.3	40	20.9	77	22.0
50-59	64	40.3	75	39.3	139	39.7
60-69	22	13.8	40	22.0	64	18.3
70-79	3	1.9	2	1.0	5	1.4
Race						
Caucasian	112	70.4	141	73.8	253	72.3
African American	43	27.1	46	24.1	89	25.4
Hispanic	1	0.6	0	---	1	0.3
Asian/Pacific Islander	0	---	0	---	---	---
Native American or Alaskan native	1	0.6	1	0.5	2	0.6
Southeast Asian	0	---	0	---	---	---
Other	2	1.3	3	1.6	5	1.4
Marital status						
Single	56	35.2	61	32.0	117	33.4
Married	22	13.8	24	13.1	47	13.4
Separated	9	5.7	8	4.2	17	4.9
Divorced	60	37.7	81	42.4	141	40.3
Widowed	12	7.5	16	8.4	28	8.0
Geographical location						
Appalachian	32	20.1	48	25.1	80	22.9
Rural,Non Appalachian	20	12.6	10	5.2	30	8.6
Metropolitan	83	52.2	104	54.5	187	53.4
Suburban	24	15.1	29	15.2	53	15.1
Extent of disability						
0 ADL needs	2	1.3	2	1.0	4	1.1
1 ADL need	8	5.0	5	2.6	13	3.7
2 ADL needs	21	13.2	21	11.0	42	12.0
3 ADL needs	40	25.2	62	32.5	102	29.1
4 ADL needs	37	23.3	44	23.0	81	23.2
5 ADL needs	24	15.1	32	16.8	56	16.0
6 ADL needs	17	10.7	35	18.3	52	14.9
Funding sources						
Medicaid only	66	41.5	84	44.0	150	42.9
Medicaid + Medicare	71	44.7	90	47.1	161	46.0
Medicaid + TPI .	8	5.0	8	4.2	16	4.5
Medicaid + Medicare + TPI	14	8.8	9	4.7	23	6.6

Table 4: *Demographics of the activities of daily living (ADL) of a sample of women on the Ohio Home Care Waiver Program.*

	Cervical cancer screening within 3 years (N = 159)		*No cervical cancer* screening within 3 years (N = 191)		*Total* (N=350)	
ADL	n	%	n	%	n	%
Mobility						
Assistance	110	69.2	149	78.0	259	74.0
No assistance	49	30.8	42	22.0	91	26.0
Bathing						
Assistance	144	91.0	181	95.0	325	92.9
No assistance	15	9.0	10	5.0	25	7.1
Grooming						
Assistance	101	63.5	124	65.0	225	64.3
No assistance	58	36.5	67	35.0	125	35.7
Toileting						
Assistance	58	36.5	80	42.0	138	39.4
No assistance	101	63.5	111	58.0	212	60.6
Dressing						
Assistance	139	87.4	175	91.6	314	89.7
No assistance	20	12.6	16	8.4	36	10.3
Eating						
Assistance	23	14.0	42	22.0	65	18.6
No assistance	136	86.0	149	78.0	285	81.4

Logistic regression

Preliminary analysis

Following the descriptive analysis, each independent variable was assessed for inclusion in the proposed logistic regression model. Univariate regression analysis for each independent variable on the dependent variable of cervical cancer screening indicated that total ADL had a significance level of 0.027 and should be included as a variable for the final model. The variables of age and TPI had at least a moderate relationship with CCS and were included in the analysis for possible interaction with cervical cancer screening see Table 5).

Table 5: *Results of univariate regression analysis model for cervical cancer screening.*

Variable	B	S.E.	Sig.	Odds ratio
Age	-.013	.009	.149	.987
Race	.224	.247	.365	1.251
Extent of disability	-.171	.077	.027	.843
Location	-.090	.215	.675	.914
Marital status	.111	.317	.726	1.117
Plus Medicare	.004	.229	.986	1.004
Plus TPI	.241	.526	.647	1.273
Plus Medicare/TPI	.683	.458	.136	1.980

A preliminary logistic regression analysis was completed to verify the univariate findings. Results indicated that Total ADL, age, and TPI had at least a moderate relationship to be included in developing the final model. For model building purposes, $p<0.25$ was used for the preliminary decision making (see Table 6).

Table 6: *Results of preliminary logistic regression model for cervical cancer screening.*

Variable	B	S.E.	Sig.	Odds ratio
Age	-.019	.010	.061	.981
African American	.429	.279	.124	1.536
Total ADL	-.220	.083	.088	.802
Rural	.308	.260	.235	1.361
Currently Married	.130	.337	.699	1.139
Plus Medicare	-.011	.239	.962	.989
Plus TPI	.627	.392	.110	1.872

Results of the univariate analyses, along with information from the literature review and researcher's knowledge of what is clinically important, were used to determine which variables would be included in the logistic regression models. The following independent variables were included in several different combinations while developing a full logistic regression model: age, total ADL, TPI, marital status. Results of the logistic regression models using various models indicate that total ADL remained consistently significant in each model. Age approached significance in 3 out of 4 models and TPI approached significance in both models (see Table 7).

Table 7: *Logistic regression models*.

Model A: Age (p=0.062) + Total ADL (p=0.012*)
Model B: Age (p=0.116) + Total ADL (p=0.009*) + TPI (p=0.153)
Model C: Age (p=0.051) + Total ADL (p=0.010*) + Currently Married (p=0.438)
Model D: Age (p=0.012*) + Total ADL (p=0.008*) + TPI (p=0.189) + Currently Married (p=0.596)
Model E: Total ADL (p=0.027*)
* p<0.05

Model	Predicted % Correct	Hosmer-Lemeshow test
Null	54.6	
A	56.3	0.695
B	57.7	0.740
C	57.7	0.991
D	57.4	0.712
E	55.4	0.901

Correlations

Two independent variables, Age in years and Total number of ADLs, were assessed for collinearity using Pearson's correlation coefficient. Results indicated that correlation of age and total ADL was significant (p<0.01), but weak (-0.173).

Final model

Analysis of the various models indicated little difference in the ability to correctly predict the likelihood of a woman obtaining a cervical cancer screening. From this indicator, model B (age, total ADL, TPI) and model C (age, total ADL, currently married) were the best models. Predicted percent correct ranged from 54.6% for the null model (no predictor variables), to 57.7% for models B and C. Results of the logistic regression models indicate that total ADL remained consistently significant. Age was significant in one model, and approached significance in three others. Although TPI approached significance in individual analysis (p=0.11), it lost significance in the full models (p=0.153, p=0.189), and did not improve overall model fit so did not merit

inclusion in the final model. Analysis of the Hosmer-Lemeshow scores indicated that model C had the best fit (0.991). Although marital status did not appear to be significant in model C (p=0.438), it did improve the overall model fit when included (see Table 7).

Results of the final regression model of age, total ADL, and currently married can be seen in Table 8. Total ADL remained a consistent predictor of cervical cancer screening. The odds of having a cervical cancer screening in the last 3 years decrease by 20% with each additional ADL requiring assistance (p=0.010; OR=0.815), controlling for age and marital status. Age and marital status were not significant predictors of cervical cancer screening.

Table 8: *Results of final* logistic *regression model for cervical cancer screening.*
* p<0.05

Variable	B	S.E.	Wald	Sig.	Odds ratio	95% C.I.
Age	-.019	.009	3.807	.051	.982	.964-1.000
Total ADL	-.205	.080	6.567	.010*	.815	.696 - .953
Currently Married	.252	.325	.603	.438	1.287	.681-2.432

DISCUSSION

Demographic predictors of cervical cancer screenings

The purpose of this project was to describe cervical cancer screening rates in women with disabilities, living in Ohio, and explore the relationship of select demographic factors to cervical cancer screening participation. Results from this study indicate that the extent of disability is a significant factor in determining screening behaviors in women with disabilities. This held true while controlling for other demographic factors. This study found that as the amount of disability increased, the likelihood of completing a cervical cancer screening declined. Odds of being screened decreased 20% with every one unit increase in ADL after controlling for age and marital status.

This study analyzed six demographic variables and their relationship to cervical cancer screening utilization: age, race, extent of disability, geographic location, marital status, and insurance. Previous studies indicated that these variables had some relationship to whether a woman with disabilities was screened or not.

The current study indicated that extent of disability was the only significant predictor of screening. This finding was consistent with findings of other researchers (Chan et al., 1999; Kroll et al., 2006; Chevarley et al., 2006). Previous research further indicated that physical disabilities had the lowest rate of utilization when compared to sensory or mental health disabilities. Accessibility factors have been noted in previous studies as a contributing factor associated with disability.

Age had a weak ability to predict screening behavior. As expected, as age increased, the likelihood of being screened decreased. Age and level of disability were

weakly correlated in this study. With increasing age, people often develop more limitations in mobility and abilities. This would then lead to the issues discussed regarding the level of disability.

Although having access to private insurance initially appeared to have some influence on screening predictability, in the final analysis, it did not. This was a surprising finding because previous studies had indicated that having insurance was a good predictor of screening and lack of insurance resulted in higher rates of late stage diagnosis and treatment. Some of this may be explained by the fact that all women included in this study had access to Medicaid. Some of the previous studies analyzed women with and without insurance.

Marital status was not found to be a significant factor in predicting screening. This varies from previous studies that have indicated that being married contributed to the likelihood of being screened, though several of these studies also analyzed marital status in connection to functional limitations. In this study, only 13% of the women in the sample were married, so there may not have been enough variability in marital status to accurately analyze this variable.

This study also did not find race to be of any significant predictive value. Only 1% of the sample represented a race other than Caucasian or African American. It is possible that lack of variability limited the possible effects of race on screening behaviors. Benard, Lee, Piper, and Richardson (2001), as cited in Newmann and Garner (2005), indicated that screening rates tended to be higher for Blacks, but this study did not indicate any difference in screening rates.

Also surprising were the results for geographic location. This study did not find any difference in screening rates for women in rural vs. urban settings. Research analyzing this variable for other health behaviors, such as mammography, have indicated that those in rural settings, specifically, Appalachian areas, are less likely to engage in screenings. This researcher included this variable in this study expecting to find similar findings, but did not.

Cervical cancer screening rates

As expected, this study does indicate that there is a significant difference in screening rates for women with disabilities and the general population. This is consistent with previous studies. Parish and Huh (2006) reported that 58% of disabled vs. 63% of the non-disabled received pap smears in the previous 12 months. In another study, adjusted odds ratios for cervical cancer screens revealed 79% for the disabled vs. 88% for the non-disabled population (Wei et al., 2006).

Healthy People 2010 established a goal for cervical cancer screenings of 90%. According to the 2008 BRFSS, 82% of Ohio females over the age of 18 reported having had a pap test within the last three years (Horner et al., 2009). In this study, 45.4% of the women had completed a screening within the past 3 years. This study verifies previous research indicating that a significant disparity exists in screening rates between the general population and women with disabilities.

An additional finding of this study is that it appears that the measure used to indicate level of disability has an important effect on the outcomes. Previous studies have utilized self-report data such as the NHIS-D (Chevarley et al., 2006; Iezzoni et al., 2001; Thiery, 2000), BRFSS (Diab & Johnston, 2004), National Survey of America's

Families (Parish & Huh, 2006), California Health Interview Survey (Ramirez, Farmer, Grant, & Papachristou, 2005), and Medical Expenditure Survey (Wei et al., 2006) to determine the influence of disability on preventative care. These surveys utilized general questions to determine disability. This study utilized specific levels of disability based on how many Activities of Daily Living (ADLs) required physical assistance to perform. Results indicated that the higher the number of ADLs the person needed assistance with, the less likely they were to have been screened. Chan et al. (1999) utilized this more specific criteria to evaluate level of disability and screening behaviors and had similar results. It appears that the more specific method of defining disability can result in a more accurate estimation of the true level of disparity in screening behaviors.

Public health implications

While there has been some research in the area of disability and how this impacts health care behaviors, this is still in its infancy. Scientists have identified some common barriers to health care and discovered that disparities exist compared to the general population. More detailed knowledge and understanding is needed about people with disabilities if we are going to impact their health in a positive manner. Public health needs to lobby for increased money and research to more clearly identify barriers, knowledge, and attitudes that will increase healthy choices and behaviors in people with disabilities.

Extent of disability has been identified as a significant predictor of being screened. Our population in the United States is aging, and this will increase the number of individuals with functional limitations and disabilities. Our public health system needs

to identify ways to decrease disability and its effects on functional abilities. Prevention efforts should continue to be a major focus.

Public health must increase their outreach to this population to address the need for and importance of preventative health screenings. In order to do this, we need to begin to target the barriers we already know exist, such as environmental access, and provide information on options for those with disabilities. Specific public health education targeted at those women with disabilities should be developed in order to increase understanding of the importance of preventative screenings to their long term health.

In addition, public health systems need to be at the forefront of ensuring that those with disabilities are recognized as a group with significant health disparities. That so little research has been done or is being done in this area suggests that disabilities are not a strongly recognized area of concern.

Recommendations for future research

Future research needs to continue to identify the specific barriers for preventative screening behaviors for women with disabilities. While some patterns are emerging in the research, such as accessibility and extent of disability, these patterns are not yet well understood. New research would be beneficial to identify if there are unique responses in minority populations or cultures.

The scope of this current research could not address two areas identified as issues impacting screenings for women with disabilities, specifically, having a regular source of health care and physician-related issues. Future researchers should consider exploring

the role that the primary care physician has on screening behaviors. The literature has suggested that the physician plays a major role in this issue.

This study analyzed several variables to determine if a relationship existed with cervical cancer screening rates. It found that extent of disability was a significant factor in predicting screening. It also confirmed that utilization rates for women with disabilities fell well below the general population rate or the goal set by Healthy People 2010.

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APPENDIX

APPENDIX A

You replied on 10/29/2008 9:36 AM.
Follow up

Martin, Shari

From: Wilson, Deborah **Sent:** Tue 10/28/2008 10:04 PM
To: Martin, Shari
Cc:
Subject: FW: a request
Attachments:

From: Wilson, Deborah
Sent: Fri 5/9/2008 6:32 PM
To: Martin, Shari
Subject: RE: a request

Hi Shari,

Your request has been approved and your proposal has been accepted.

Debbie

Deborah Wilson, LISW

Director of Clinical Services
Ohio Home Care Program
6100 Channingway Blvd, Suite 700, Columbus, Ohio 43232
Phone: 614-751-7777, Ext 3124 Fax 614-729-6484
Dwilson@ohiohcp.org www.ohiohcp.org

From: Martin, Shari
Sent: Fri 5/9/2008 6:02 PM
To: Wilson, Deborah
Subject: a request

Hi Debbie-

I left you a VM yesterday, but wanted to follow up with email. As you may or may not know, I am finishing up my Masters in Public Health. I have a final applied research project required for this program that I have been working on for about 7 months now. Unfortunately, much of what I had planned to do has fallen apart. As I spoke to my chairperson, much of the information I could use for my re-structured project could be obtained through info available on our PEATS. I had discussed this over a year ago with Daryl, but then ended up changing directions and did not pursue this avenue. I would like to know if Carestar would be willing to allow me access to the PEAT data for a randomized sample of consumers to pull descriptive data from for my research? Previously (last spring), the state provided data for me for Montgomery and Greene county folks for another research project and I worked with Genny Nichols for that. She said at that time that I could obtain info from CS with CS permission to access consumer files. I assume I would need to also get the states approval again for info I wanted.

Let me explain what I am proposing in more detail here. I have been researching the disparity between the general population of females and those with disabilities in accessing/utilizing cervical cancer screenings. I have found a large discrepancy in rates between these two groups. This appears (from literature) to be based on 1) consumer issues (lack of insurance, lack of transportation, lack of knowledge, lack of primary caregiver, lack of access, negative responses by PCP, etc) and 2) physician related issues (lack of knowledge about disabilities, lack of knowledge about sexuality and disability, attitudes/beliefs, possibly cost issues related to reimbursements/lack of staff, etc). There is much documentation about the consumer issues, but relatively little about the physician issues. My hope was to explore the physician side for more detail, but difficulty in getting honest feedback from this group has made us change direction a bit. I am now looking at gathering descriptive data on females with disabilities, analyze it to see if it matches the trends already identified in literature, then take that data from OUR state specifically to a few groups of physicians
and see if they can help me identify barriers to screenings for women with disabilities.

Our hope is to obtain the info we are interested in a backdoor kind of way that won't be as threatening to physicians (since they all know the "right" answers and best practice guidelines!).

All of the data would obviously have safeguards in place to de-identify it. I thought it might also be a useful study for CS to have in contract negotiations....showing how our database info is rich in info and can be a useful tool to gather helpful info from...) I also think that the implications we could draw from the study might be able to help us be better advocates for women with disabilities.

My chairperson is a PhD in health education and promotion and my reader is a practicing OB-GYN. If CS is willing to allow me to do this research, I would be happy to have you or another person in CS be a second reader for the research to ensure accuracy, give input, and oversee the project.

Please let me know ASAP if CS would allow this. I would like to finish my proposal and IRB process by the end of May.

Thanks for your consideration.

Shari Martin, LSW

Case Manager
Ohio Home Care Waiver program
81 Rhoads Center Dr, Centerville, OH 45458
Phone: 937-350-3794 fax) 937-258-8678
Toll free phone: 800-538-4218 x4348
smartin@ohiohcp.org

APPENDIX B

Office of Research and Sponsored Programs
201J University Hall
3640 Col. Glenn Hwy.
Dayton, OH 45435-0001
(937) 775-2425
(937) 775-3781 (FAX)
e-mail: rsp@wright.edu

DATE: 06/04/2009

TO: Shari Martin, P.I., student
School of Medicine
Marietta Langlois, Ph.D., Chair

FROM: B. Laurel Elder, Ph.D., Chair
WSU Institutional Review Board

SUBJECT: SC# 3917
'Cervical cancer screenings in women with disabilities: The big picture for Ohio'

This memo is to verify the receipt and acceptance of your response to the conditions placed on the above referenced human subjects protocol/amendment.

These conditions were lifted on: Jun 04, 2009

This study/amendment now has full approval and you are free to begin the research project. If this is a VA proposal, you must still receive a letter of approval from the Research and Development Committee prior to beginning the research project. This implies the following:

1. That this approval is for one year from the approval date shown on the Action Form and if it extends beyond this period a request for an extension is required. (Also see expiration date on the Action Form)

2. That a progress report must be submitted before an extension of the approved one-year period can be granted.

3. That any change in the protocol must be approved by the IRB; otherwise approval is terminated.

If you have any questions concerning the condition(s), please contact Robyn Wilks, IRB Coordinator at 775-4462.

Thank you!

Enclosure

RESEARCH INVOLVING HUMAN SUBJECTS

SC# 3917

ACTION OF THE WRIGHT STATE
UNIVERSITY
EXPEDITED REVIEW
Assurance Number: FWA00002427

Title: *'Cervical cancer screenings in women with disabilities: The big picture for Ohio'*

Principal Investigator: Shari Martin, P.I., student
Marietta Langlois, Ph.D., Chair

Department: School of Medicine

Expedited Category: 5

The Institutional Review Board has approved the use of human subjects on this proposed project with conditions previously noted. The conditions have now been removed.

REMINDER: FDA regulations require prompt reporting to the IRB of any changes in research activity, changes in approved research during the approval period may not be initiated without IRB review (submission of an amendment), and prompt reporting of any unanticipated problems (adverse events).

B Rural Ellen Ph.D

Signed Chair, WSU-IRB

Expedited Review Date: May 29, 2009

IRB Meeting Date: June 15, 2009

This approval is effective only through: May 29, 2010

To continue the activities approved under this protocol you should receive the appropriate form(s) from Research and Sponsored Programs (RSP) two to three months prior to the required due date. If you do not receive this notification, please contact RSP at 775-2425.

APPENDIX C

County Regional Distinction - Ohio Family Health Survey, March 2005

Ohio Job & Family Services

County	Regional Distinction	Regional Distinction (#)
Adams	Appalachian	1
Allen	Metropolitan	3
Ashland	Rural Non-Appalachian	2
Ashtabula	Rural Non-Appalachian	2
Athens	Appalachian	1
Auglaize	Suburban	4
Belmont	Appalachian	1
Brown	Appalachian	1
Butler	Metropolitan	3
Carroll	Appalachian	1
Champaign	Rural Non-Appalachian	2
Clark	Suburban	4
Clermont	Appalachian	1
Clinton	Rural Non-Appalachian	2
Columbiana	Appalachian	1
Coshocton	Appalachian	1
Crawford	Rural Non-Appalachian	2
Cuyahoga	Metropolitan	3
Darke	Rural Non-Appalachian	2
Defiance	Rural Non-Appalachian	2
Delaware	Suburban	4
Erie	Rural Non-Appalachian	2
Fairfield	Suburban	4
Fayette	Rural Non-Appalachian	2
Franklin	Metropolitan	3
Fulton	Suburban	4
Gallia	Appalachian	1
Geauga	Suburban	4
Greene	Suburban	4
Guernsey	Appalachian	1
Hamilton	Metropolitan	3
Hancock	Rural Non-Appalachian	2
Hardin	Rural Non-Appalachian	2
Harrison	Appalachian	1
Henry	Rural Non-Appalachian	2

County	Regional Distinction	Regional Distinction (#)
Highland	Appalachian	1
Hocking	Appalachian	1
Holmes	Appalachian	1
Huron	Rural Non-Appalachian	2
Jackson	Appalachian	1
Jefferson	Appalachian	1
Knox	Rural Non-Appalachian	2
Lake	Suburban	4
Lawrence	Appalachian	1
Licking	Suburban	4
Logan	Rural Non-Appalachian	2
Lorain	Metropolitan	3
Lucas	Metropolitan	3
Madison	Suburban	4
Mahoning	Metropolitan	3
Marion	Rural Non-Appalachian	2
Medina	Suburban	4
Meigs	Appalachian	1
Mercer	Rural Non-Appalachian	2
Miami	Suburban	4
Monroe	Appalachian	1
Montgomery	Metropolitan	3
Morgan	Appalachian	1
Morrow	Rural Non-Appalachian	2
Muskingum	Appalachian	1
Noble	Appalachian	1
Ottawa	Rural Non-Appalachian	2
Paulding	Rural Non-Appalachian	2
Perry	Appalachian	1
Pickaway	Suburban	4
Pike	Appalachian	1
Portage	Suburban	4
Preble	Rural Non-Appalachian	2
Putnam	Rural Non-Appalachian	2
Richland	Metropolitan	3
Ross	Appalachian	1
Sandusky	Rural Non-Appalachian	2
Scioto	Appalachian	1
Seneca	Rural Non-Appalachian	2
Shelby	Rural Non-Appalachian	2
Stark	Metropolitan	3

County	Regional Distinction	Regional Distinction (#)
Summit	Metropolitan	3
Trumbull	Suburban	4
Tuscarawas	Appalachian	1
Union	Suburban	4
Van Wert	Rural Non-Appalachian	2
Vinton	Appalachian	1
Warren	Rural Non-Appalachian	2
Washington	Appalachian	1
Wayne	Rural Non-Appalachian	2
Williams	Rural Non-Appalachian	2
Wood	Suburban	4
Wyandot	Rural Non-Appalachian	2
		Appalachian = 1
		Rural Non-Appalachian = 2
		Metropolitan = 3
		Suburban = 4

APPENDIX D

Core Competencies for Public Health Professionals

Domain #1: Analytic Assessment Skills

Specific Competencies	Front Line Staff	Senior Level Staff	Supervisory and Management Staff
1. Defines a problem	Knowledgeable to proficient	Proficient	Proficient
2. Determines appropriate uses and limitations of both quantitative and qualitative data	Aware to knowledgeable	Proficient	Proficient
3. Selects and defines variables relevant to defined public health problems	Aware to knowledgeable	Proficient	Proficient
4. Identifies relevant and appropriate data and information sources	Knowledgeable	Proficient	Proficient
5. Evaluates the integrity and comparability of data and identifies gaps in data sources	Aware	Proficient	Proficient
6. Applies ethical principles to the collection, maintenance, use, and dissemination of data and information	Knowledgeable to proficient	Proficient	Proficient
7. Partners with communities to attach meaning to collected quantitative and qualitative data	Aware to knowledgeable	Proficient	Proficient
8. Makes relevant inferences from quantitative and qualitative data	Aware to knowledgeable	Proficient	Proficient
9. Obtains and interprets information regarding risks and benefits to the community	Aware to knowledgeable	Proficient	Proficient
10. Applies data collection processes, information technology applications, and computer systems storage/retrieval strategies	Aware to knowledgeable	Knowledgeable to proficient	Knowledgeable to proficient
11. Recognizes how the data illuminates ethical, political, scientific, economic, and overall public health issues	Aware	Knowledgeable to proficient	Proficient

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Funded by the Health Resources and Services Administration

Core Competencies for Public Health Professionals

Domain #2: Policy Development/Program Planning Skills

Specific Competencies	Front Line Staff	Senior Level Staff	Supervisory and Management Staff
1. Collects, summarizes, and interprets information relevant to an issue	Knowledgeable	Proficient	Proficient
2. States policy options and writes clear and concise policy statements	Aware	Knowledgeable to proficient	Proficient
3. Identifies, interprets, and implements public health laws, regulations, and policies related to specific programs	Aware	Knowledgeable to proficient	Proficient
4. Articulates the health, fiscal, administrative, legal, social, and political implications of each policy option	Aware	Knowledgeable	Proficient
5. States the feasibility and expected outcomes of each policy option	Aware	Knowledgeable	Proficient
6. Utilizes current techniques in decision analysis and health planning	Aware	Knowledgeable to proficient	Proficient
7. Decides on the appropriate course of action	Aware	Knowledgeable to proficient	Proficient
8. Develops a plan to implement policy, including goals, outcome and process objectives, and implementation steps	Aware	Knowledgeable to proficient	Proficient
9. Translates policy into organizational plans, structures, and programs	Aware	Knowledgeable to proficient	Proficient
10. Prepares and implements emergency response plans	Aware to knowledgeable	Knowledgeable to proficient	Proficient
11. Develops mechanisms to monitor and evaluate programs for their effectiveness and quality	Aware to knowledgeable	Proficient	Proficient

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Core Competencies for Public Health Professionals

Domain #3: Communication Skills

Specific Competencies	Front Line Staff	Senior Level Staff	Supervisory and Management Staff
1. Communicates effectively both in writing and orally, or in other ways	Proficient	Proficient	Proficient
2. Solicits input from individuals and organizations	Knowledgeable to proficient	Proficient	Proficient
3. Advocates for public health programs and resources	Knowledgeable	Proficient	Proficient
4. Leads and participates in groups to address specific issues	Knowledgeable	Proficient	Proficient
5. Uses the media, advanced technologies, and community networks to communicate information	Aware to knowledgeable	Proficient	Proficient
6. Effectively presents accurate demographic, statistical, programmatic, and scientific information for professional and lay audiences	Knowledgeable	Proficient	Proficient
Attitudes			
1. Listens to others in an unbiased manner, respects points of view of others, and promotes the expression of diverse opinions and perspectives	Proficient	Proficient	Proficient

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Core Competencies for Public Health Professionals

Domain #4: Cultural Competency Skills

Specific Competencies	Front Line Staff	Senior Level Staff	Supervisory and Management Staff
1. Utilizes appropriate methods for interacting sensitively, effectively, and professionally with persons from diverse cultural, socioeconomic, educational, racial, ethnic and professional backgrounds, and persons of all ages and lifestyle preferences	Proficient	Proficient	Proficient
2. Identifies the role of cultural, social, and behavioral factors in determining the delivery of public health services	Knowledgeable	Proficient	Proficient
3. Develops and adapts approaches to problems that take into account cultural differences	Proficient	Proficient	Proficient
Attitudes			
1. Understands the dynamic forces contributing to cultural diversity	Knowledgeable	Knowledgeable to proficient	Proficient
2. Understands the importance of a diverse public health workforce	Knowledgeable	Proficient	Proficient

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Core Competencies for Public Health Professionals

Domain #5: Community Dimensions of Practice Skills

Specific Competencies	Front Line Staff	Senior Level Staff	Supervisory and Management Staff
1. Establishes and maintains linkages with key stakeholders	Knowledgeable	Proficient	Proficient
2. Utilizes leadership, team building, negotiation, and conflict resolution skills to build community partnerships	Aware to proficient	Proficient	Proficient
3. Collaborates with community partners to promote the health of the population	Knowledgeable to proficient	Proficient	Proficient
4. Identifies how public and private organizations operate within a community	Knowledgeable	Proficient	Proficient
5. Accomplishes effective community engagements	Aware to knowledgeable	Proficient	Proficient
6. Identifies community assets and available resources	Knowledgeable to proficient	Proficient	Proficient
7. Develops, implements, and evaluates a community public health assessment	Knowledgeable	Proficient	Proficient
8. Describes the role of government in the delivery of community health services	Knowledgeable	Proficient	Proficient

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Core Competencies for Public Health Professionals

Domain #6: Basic Public Health Sciences Skills

Specific Competencies	Front Line Staff	Senior Level Staff	Supervisory and Management Staff
1. Identifies the individual's and organization's responsibilities within the context of the Essential Public Health Services and core functions	Knowledgeable	Proficient	Proficient
2. Defines, assesses, and understands the health status of populations, determinants of health and illness, factors contributing to health promotion and disease prevention, and factors influencing the use of health services	Knowledgeable	Proficient	Proficient
3. Understands the historical development, structure, and interaction of public health and health care systems	Aware	Knowledgeable	Proficient
4. Identifies and applies basic research methods used in public health	Aware	Proficient	Proficient
5. Applies the basic public health sciences including behavioral and social sciences, biostatistics, epidemiology, environmental public health, and prevention of chronic and infectious diseases and injuries	Knowledgeable	Proficient	Proficient
6. Identifies and retrieves current relevant scientific evidence	Knowledgeable	Proficient	Proficient
7. Identifies the limitations of research and the importance of observations and interrelationships	Knowledgeable	Proficient	Proficient
Attitudes			
1. Develops a lifelong commitment to rigorous critical thinking	Knowledgeable to Proficient	Proficient	Proficient

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Core Competencies for Public Health Professionals

Domain #7: Financial Planning and Management Skills

Specific Competencies	Front Line Staff	Senior Level Staff	Supervisory and Management Staff
1. Develops and presents a budget	Aware	Knowledgeable	Proficient
2. Manages programs within budget constraints	Aware	Knowledgeable to proficient	Proficient
3. Applies budget processes	Aware	Knowledgeable	Proficient
4. Develops strategies for determining budget priorities	Aware	Knowledgeable	Proficient
5. Monitors program performance	Aware to knowledgeable	Proficient	Proficient
6. Prepares proposals for funding from external sources	Aware	Proficient	Proficient
7. Applies basic human relations skills to the management of organizations, motivation of personnel, and resolution of conflicts	Aware to knowledgeable	Proficient	Proficient
8. Manages information systems for collection, retrieval, and use of data for decision-making	Aware	Knowledgeable to proficient	Proficient
9. Negotiates and develops contracts and other documents for the provision of population-based services	Aware	Knowledgeable	Proficient
10. Conducts cost-effectiveness, cost-benefit, and cost utility analyses	Aware	Knowledgeable	Proficient

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Core Competencies for Public Health Professionals

Domain #8: Leadership and Systems Thinking Skills

Specific Competencies	Front Line Staff	Senior Level Staff	Supervisory and Management Staff
1. Creates a culture of ethical standards within organizations and communities	Knowledgeable to proficient	Proficient	Proficient
2. Helps create key values and shared vision and uses these principles to guide action	Aware to knowledgeable	Knowledgeable to proficient	Proficient
3. Identifies internal and external issues that may impact delivery of essential public health services (i.e. strategic planning)	Aware	Knowledgeable to proficient	Proficient
4. Facilitates collaboration with internal and external groups to ensure participation of key stakeholders	Aware	Knowledgeable to proficient	Proficient
5. Promotes team and organizational learning	Knowledgeable	Knowledgeable to proficient	Proficient
6. Contributes to development, implementation, and monitoring of organizational performance standards	Aware to knowledgeable	Knowledgeable to proficient	Proficient
7. Uses the legal and political system to effect change	Aware	Knowledgeable	Proficient
8. Applies theory of organizational structures to professional practice	Aware	Knowledgeable	Proficient

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APPENDIX E

Pag

SECTION A** REFERRAL INFORMATION			
Date Alert/Referral Received:	Date Contacted to Schedule Assessment: Consumer: Team Member name(s) and date(s):	Date of Face to Face Assessment:	Place of Assessment: Choose Place Other:
Reason for Request: Initial Determination	Ohio Home Care Waiver	Other:	
Signature Date: (if applicable) 4/6/2009			
Name(s) of persons present at assessment:			
Source(s) of assessment information: ☐ Individual ☐ Primary Caregiver ☐ Legal Guardian ☐ Physician Other:			

SECTION B** CONSUMER INFORMATION		
Last Name	First Name	Middle Initial

Street Address		State OH	Zip	
Phone Number		Communication Barrier: ○ No ○ Yes:		
Alias Name (if applicable):		Directions:		
Date of Birth:		Age: Gender: ☐ Male ☐ Female		
Marital Status: Choose connected to disability		☐ Veteran	☐ Veteran with service	
Race: Choose	Other:			
Social Security Number	CRISE Case Number	MMIS Billing Number	CRIS-E Recipient Number	County
Email:	Work #:	Fax #:	Cell #:	

Court Appointment Guardian: (Complete only if court document viewed or verified with Co. Probate Ct.)
Name: Relationship: Choose
Address: City: State:
Home Phone: Work Phone:
Cell Phone: Email:
Guardianship is of : ☐ Person ☐ Estate
Obtain or request a copy for consumer file and so document in Comment box below
Comments (Specify if guardianship is limited)

Power of Attorney: (Complete only if document is viewed and/or obtained)
Name: Relationship: Choose
Address: City: State:
Home Phone: Work Phone:
Cell Phone: Email:
Obtain or request a copy for consumer file and so document in Comment box below Comments

Current Medicaid Recipient ○ Y ○ N	Medicaid Eligible ○ Y ○ N	Pending Medicaid ○ Y ○ N	Spend Down Amount: $0.00 Liability Amount: $0.00
Medicaid HMO ○ No ○ Yes (List Name) Phone			

Medicare number: ○ N/A ○ Yes ○ No

Part A: Hospital Benefits ○ Y ○ N Part B: Supplemental Medical Insurance Benefits ○ Y ○ N

Part D: Prescription Drug Benefits ○ Y ○ N Specify:

Other Insurance ☐ N/A

Company Name: Billing Address:	Policy Number Company Phone Number

Emergency Contact(s)

Name:	Home Phone: Work Phone:	Relationship: Choose
Name:	Home Phone: Work Phone:	Relationship: Choose

1

SECTION C: LIVING ARRANGEMENTS / HOUSEHOLD COMPOSITION					
Living Arrangements					
Usual	Current	Living Arrangement	Usual	Current	Living Arrangement
☐	☐	Own/Rent: House/Apartment	☐	☐	W/ Relative/Friend
☐	☐	Congregate Housing	☐	☐	ICF-MR
☐	☐	Group Home/Foster Home/Rest Home	☐	☐	Assisted or Supportive Living
☐	☐	☐ NF ☐ Hospital	☐	☐	Other(list):

Household Composition List all persons residing in household.				
Name	Relationship	Age	Receiving Services?	Type?
	Choose		○ Yes ○ No	
	Choose		○ Yes ○ No	
	Choose		○ Yes ○ No	
	Choose		○ Yes ○ No	
	Choose		○ Yes ○ No	

SECTION D:** MEDICAL INFORMATION		
ICD-9 Code	Diagnosis	Date of Onset
	Will Complete on Save	
	Will Complete on Save	
	Will Complete on Save	

Physicians and Specialists
Primary / Treating Physician**
Name: [redacted] Specialty: Address: Phone: Fax: Email: Date last seen: Office Contact Name: ☐ Prescribes Meds
Additional Physician(s)

Name	Phone Number	Specialty	Prescribes Meds	Date Last Seen	Reason Last Seen

Institutional Care: Indicate most recent hospital stay		
Hospital:	Admission:	Discharge:
City:	Reason:	
Number of hospital admissions in last 12 months:		
Long Term Care Facility:	Admission:	Discharge:
City:	Reason:	
Number of facility admissions in last 12 months:		
Number of facility admissions in the last 24 months for psychiatric reasons:	Zero	

Significant Health History/Summary: Include surgeries, illnesses, rehabilitation, & summary of overall condition

Individual has executed:	COPY OBTAINED	COPY REQUESTED
☐ Living Will	☐	☐
☐ Durable POAHC (Name): _____	☐	☐
☐ DNR	☐	☐

Individual has requested infomation for: ☐ Living Will ☐ DNR ☐ DPOAHC

SECTION E: REVIEW OF SYSTEMS

Check all sources that apply: ☐ Physician ☐ Medical Record ☐ Individual ☐ Primary C/G ☐ Other:

Specify all medical interventions and treatment regimens, indicating tasks that must be performed (and at what frequency) by licensed professionals. For the tasks that cannot be delegated, indicate reason: e.g. - unstable condition, complexity of service, medical complication, and other (REFER TO AOC 5101:3-3-05). Note that last examination date is exam done by any medical professional.

1) EYES Last examination date: ☐ No Abnormalities reported/detected

☐ Prosthesis ☐ L ☐ R ☐ Swelling ☐ Jaundice ☐ Redness ☐ Pain

☐ Loss of vision ☐ L ☐ R ☐ Discharge ☐ Blurring ☐ Diplopia

☐ Difficulty Reading ☐ Glasses ☐ Contacts ☐ History of Glaucoma/Cataracts

☐ Other (list):

Interventions:

Performed by (check and list frequency)
Frequency:

☐ SN (RN/LPN) ☐ PT ☐ ST ☐ OT ☐ Parent
☐ Guardian
☐ AIDE ☐ SELF ☐ Other (specify):

Equipment/Supplies:

Provider:

Comments:

☐ Implication for ASP

2) EARS Last examination date: ☐ No Abnormalities reported/detected

☐ Hearing Aide ☐ L ☐ R ☐ Deafness ☐ Diminished Hearing ☐ L ☐ R ☐ Tinnitus

☐ Discharge ☐ Pain ☐ Other (list):

Interventions:

Performed by (check and list frequency)
Frequency:
☐ SN (RN/LPN) ☐ PT ☐ ST ☐ OT ☐ Parent
☐ Guardian
☐ AIDE ☐ SELF ☐ Other (specify):

Equipment/Supplies:

Provider:

Comments:

☐ Implication for ASP

3) MOUTH & THROAT Last examination date: ☐ No Abnormalities reported/detected

☐ Teeth: ☐ missing: ☐ broken (location): ☐ Difficulty: ☐ chewing ☐ swallowing

☐ Gums: ☐ swollen ☐ bleeding ☐ receding ☐ Dentures/Partial

☐ Lesions ☐ Dry Mouth ☐ Halitosis

☐ Loss of sense of taste ☐ Other (list):

Interventions:

Performed by (check and list frequency)
Frequency:
☐ SN (RN/LPN) ☐ RD ☐ ST ☐ OT ☐ Parent
☐ Guardian
☐ AIDE ☐ SELF ☐ Other (specify):

Equipment/Supplies:

Provider:

Comments:

☐ Implication for ASP

4) PULMONARY / RESPIRATORY / SINUS Last examination date: ☐ No Abnormalities reported/detected

☐ Abnormalities with sinus ☐ Abnormalities with sense of smell ☐ Dyspnea: ☐ at rest ☐ with exertion

☐ Persistent Cough ☐ Audible Wheezing ☐ Tracheotomy

☐ Expectorates: ☐ Blood ☐ Sputum ☐ Cyanosis ☐ Nosebleeds

☐ Therapy: ☐ oxygen cannula ☐ oxygen mask ☐ ventilator ☐ IPPB ☐ BPAP ☐ CPAP ☐ Aerosol ☐ Nebulizer

☐ Other (list):

Interventions:

Performed by (check and list frequency)
Frequency:
☐ SN (RN/LPN) ☐ PT ☐ ST ☐ OT ☐ Parent
☐ Guardian

☐ AIDE ☐ SELF ☐ Other (specify):

Equipment/Supplies:

Provider:

Comments:

☐ Implication for ASP

5) CARDIOVASCULAR & CIRCULATORY Last examination date: ☐ No Abnormalities reported/detected

☐ Pain:	☐ chest	☐ jaws	☐ neck	☐ arms	☐ Irregular Heartbeat	☐ Fainting
☐ Pressure:	☐ chest	☐ neck	☐ arms		☐ High Blood Pressure	☐ Blackouts
☐ Tightness	☐ chest	☐ neck	☐ arms		☐ Vertigo	☐ Convulsions
☐ Edema:	☐ hands	☐ ankles	☐ feet	☐ other	☐ Shortness of Breath:	☐ at rest ☐ with exertion

☐ Other (list):

Interventions:

Performed by (check and list frequency)
Frequency:

☐ SN (RN/LPN) ☐ PT ☐ ST ☐ OT ☐ Parent
☐ Guardian
☐ AIDE ☐ SELF ☐ Other (specify):

Equipment/Supplies:

Provider:

Comments:

☐ Implication for ASP

6) MUSCULOSKELETAL Last examination date: ☐ No Abnormalities reported/detected

☐ Joints: ☐ swollen ☐ stiffness ☐ Pain: ☐ joint ☐ muscle ☐ Prosthesis (list):

☐ Gait: ☐ unsteady ☐ shuffling ☐ Frequent Falls ☐ Standing: ☐ limited ☐ unable

☐ Immobility: ☐ wheelchair ☐ bedrest ☐ Contracture ☐ Deformity:

☐ Other (list):

Interventions:

Performed by (check and list frequency)
Frequency:

☐ SN (RN/LPN) ☐ PT ☐ ST ☐ OT ☐ Parent
☐ Guardian
☐ AIDE ☐ SELF ☐ Other (specify):

Equipment/Supplies:

Provider:

Comments:

☐ Implication for ASP

7) GASTROINTESTINAL Last examination date: ☐ No Abnormalities reported/detected

☐ Indigestion ☐ Nausea ☐ Abdominal Pain

☐ Vomiting ☐ Fecal Incontinence ☐ Recent change in bowel habits

☐ Constipation: ☐ laxative use ☐ enema use Ostomy - Type: ☐

☐ Recent Weight: ○ gain ○ loss ☐ Other (list):

Interventions:

Performed by (check and list frequency)
Frequency:

☐ SN (RN/LPN) ☐ PT ☐ ST ☐ OT ☐ Parent
☐ Guardian
☐ AIDE ☐ SELF ☐ Other (specify):

Equipment/Supplies:

Provider:

Comments:

☐ Implication for ASP

8) NUTRITIONAL STATUS Last examination date:

Height: ' " ○ report ○ actual Weight: lbs oz ○ report ○ actual

Appetite ○ good ○ fair ○ poor Supplemental Feeding ☐ tube feed

☐ Nothing by Mouth ☐ IV (including TPN)

Prescribed Diet:
Choose
Other:

Consistency, if modified
Choose

Restrictions:

Number of Meals per day:
Select...

Fluid Intake: Choose ☐ usual amount per 24 hr: (should be in CCs or oz)

☐ limited to (should be in CCs or oz) per 24 hours:

☐ type:

Use of laxatives or enema: ○ Y ○ N

History of eating disorder: Choose

Interventions:

Performed by (check and list frequency)
Frequency:

☐ SN (RN/LPN) ☐ PT ☐ ST ☐ OT ☐ RD ☐ Parent
☐ Guardian
☐ AIDE ☐ SELF ☐ Other (specify):

Equipment/Supplies:

Provider:

Comments:

☐ Implication for ASP

9) GENITOURINARY/GYNECOLOGICAL Last examination date: ☐ No Abnormalities reported/detected

☐ Incontinence: ☐ recent onset ☐ chronic ☐ Dribbling ☐ frequency ☐ urgency ☐ hesitation

☐ Painful Urination ☐ Hematuria
☐ Nocturia

☐ Catheter: ☐ foley (indwelling) ☐ straight ☐ external ☐ suprapubic

☐ Breast: ☐ lumps ☐ pain ☐ tenderness ☐ discharge ☐ Bleeding: ☐ vaginal ☐ rectal ☐ urethral

☐ Other (list):

Interventions:

Performed by (check and list frequency)
Frequency:

☐ SN (RN/LPN) ☐ PT ☐ ST ☐ OT ☐ Parent
☐ Guardian
☐ AIDE ☐ SELF ☐ Other (specify):

Equipment/Supplies:

Provider:

Comments:

☐ Implication for ASP

10) NEUROLOGICAL Last examination date: ☐ No Abnormalities reported/detected

○ Paraplegic ○ Quadraplegic ○ Hemiplegia ○ Lt ○ Rt ○ None

☐ Grasp: ☐ tremors ☐ weakness ☐ Headache: Frequency: ☐ Fainting

☐ Blackouts ☐ Vertigo ☐ Convulsions/Seizures

☐ Sleep Pattern Disturbance ☐ Loss of Tactile Sensation ☐ Hypertactile Sensation

☐ Aphasia: ☐ expressive ☐ receptive ☐ Other (list):

Convulsions/Seizures Detail

Frequency: Choose... Loss of Consciousness: Choose...

Duration of loss of consciousness: Choose... Motor impairment: Choose...

Treatment:

☐ Anticonvulsant Medication ☐ Ketogenic or other special diet

☐ Vagus Nerve Stimulation Implant ☐ Other (e.g. surgery; control of stimuli)

Environmental Precautions Required ○ Yes - Specify: ○ No

Behavioral Precautions Required ○ Yes - Specify: ○ No

Interventions:

Performed by (check and list frequency) Frequency: ☐ SN (RN/LPN) ☐ PT ☐ ST ☐ OT ☐ Parent ☐ Guardian ☐ AIDE ☐ SELF ☐ Other (specify):

Equipment/Supplies:

Provider:

Comments:

☐ Implication for ASP

11) SKIN Last examination date: ☐ No Abnormalities reported/detected

☐ Oily ☐ Dry ☐ Discoloration ☐ Jaundice

☐ Bruises ☐ Abrasions ☐ Rash ☐ Itching

☐ Sores ☐ Ulcers ☐ Skin Tears ☐ Poor Turgor ☐ Lumps

☐ Problems with Abnormalities of: ☐ Fingers ☐ Toes ☐ Hair ☐ Scalp

☐ Open Wounds/location: ☐ Other (list):

Interventions:

Performed by (check and list frequency) Frequency: ☐ SN (RN/LPN) ☐ PT ☐ ST ☐ OT ☐ Parent ☐ Guardian ☐ AIDE ☐ SELF ☐ Other (specify):

Equipment/Supplies:

Provider:

Comments:

☐ Implication for ASP

12) BLOOD DISORDER/ENDOCRINE/OTHER reported/detected Last examination date: ☐ No Abnormalities

☐ History of Iron Deficiency ☐ History of Bleeding Disorders ☐ History of Clotting Disorders

☐ History of Autoimmune Disorders ☐ History of Thyroid Disease ☐ Blood Transfusions:
☐ Frequency:

☐ Blood Glucose Monitoring ☐ self/caregiver ☐ physician office ☐ skilled nurse Frequency:

☐ Other Bloodwork Monitoring ☐ self/caregiver ☐ physician office ☐ skilled nurse Frequency:

Reason for bloodwork/monitoring: ☐ Disease Monitoring
☐ Medication Monitoring

☐ Other (list):

Interventions:

Performed by (check and list frequency) ☐ SN (RN/LPN) ☐ PT ☐ ST ☐ OT ☐ Parent
Frequency: ☐ Guardian
☐ AIDE ☐ SELF ☐ Other (specify):

Equipment/Supplies:

Provider:

Comments:

☐ Implication for ASP

13) HEALTH PROMOTION

Immunizations up-to-date (for children ages 0-16 years of age): ○ Y ○ N

Lead Screening (for children 0-6 or when otherwise indicated): ○ Y ○ N

Date of last influenza vaccine: Date of last pneumococcal vaccine:

Date of last Pap/Prostate exam: Date of last Mammogram:

Other (list):

Interventions:

☐ Counseled regarding preventive healthcare:

☐ Implication for ASP

SECTION F: MEDICATION PROFILE (Supervision, set-up, and assistance with oral medications and multi-dose inhalers is age-appropriate for consumers 0-11 years of age). These activities do not qualify as a need for skilled nursing services. Taking oral medications (for consumers of any age) does not mean a consumer requires skilled nursing.

Abbreviations: RX = Prescription OTC = Over the Counter I = Independent S = Supervision A=Assistance

☐ NO MEDICATIONS FOR THIS CONSUMER

MEDICATIONS	RX	OTC	DOSE & FREQ	ROUTE	ASSISTANCE NEEDED						AA	WHO ASSIST
					SET-UP			ADMINISTER				
					I	S	A	I	S	A		
	☐	☐			☐	☐	☐	☐	☐	☐	☐	
	☐	☐			☐	☐	☐	☐	☐	☐	☐	
	☐	☐			☐	☐	☐	☐	☐	☐	☐	
	☐	☐			☐	☐	☐	☐	☐	☐	☐	
	☐	☐			☐	☐	☐	☐	☐	☐	☐	

Who monitors medications (Specify Name or Discipline):

☐ Implication for ASP

Describe any specialized skilled interventions with medications:	☐ N/A
Who provides intervention at this time:	
Frequency of medication changes:	

Allergies:(Medical and Environment-include medications, insects, animals, etc.) ☐ No known allergies

Food Allergies:

Pharmacy:

1. Name: Phone: Fax:

Address

2. Name: Phone: Fax:

Address

Chemicals: (frequency/amount)

☐ Alcohol ☐ Caffeine

☐ Nicotine

☐ Current Chemical Dependence ☐ History of Chemical Dependence

Other (list):

SECTION G: FUNCTIONAL ABILITY**

Activities of Daily Living (ADL's) - Independent means ability to do activity with or without the use of assistive devices. Supervision and assistance with ADL's of bathing and grooming are age appropriate for consumers from 0-5 years of age. Assistance for this age group is not considered a deficit. ☐ Development Scale

Referenced Choose...

ADL Activity	IND	SUPV	ASST	AA	Performed By	Assessment determines more assistance Necessary
1. Mobility (incl any a-c)	○	○	○	☐		☐
a. Bed mobility	○	○	○	☐		☐
b. Transfer	○	○	○	☐		☐
c. Locomotion	○	○	○	☐		☐
2. Bathing	○	○	○	☐		☐
3. Grooming (incl a-c)	○	○	○	☐		☐
a. Hair Care	○	○	○	☐		☐
b. Nail Care	○	○	○	☐		☐
c. Oral Hygiene	○	○	○	☐		☐
4. Toileting	○	○	○	☐		☐
5. Dressing	○	○	○	☐		☐
6. Eating	○	○	○	☐		☐

Clarification for 1 - 6 above:

Instrumental Activities of Daily Living (IADL's) - Supervision and assistance with IADL's are age appropriate for consumers 0-15 years of age. Assistance for this age group is not considered a deficit.

IADL Activity	IND	SUPV	ASST	AA	Performed By	More Help Indicated
1. Shopping	○	○	○	☐		☐
2. Meal Preparation	○	○	○	☐		☐
3. Environmental Management (incl a-c)	○	○	○	☐		☐
a. House Cleaning	○	○	○	☐		☐
b. Heavy Chores	○	○	○	☐		☐
c.Yard work/Maintentance	○	○	○	☐		☐
4. Personal Laundry	○	○	○	☐		☐
5. Accessing Community(incl a-c)	○	○	○	☐		☐
a. Telephoning	○	○	○	☐		☐
b. Transportation	○	○	○	☐		☐
c. Legal/Financial	○	○	○	☐		☐

YES	NO	Developmental Scale Worksheet
○	○	(1) Does the consumer have a diagnosis of any other diagnosed condition (other than MI) that results in substantial functional limitations? (For initial submissions of the assessment tool documentation by a licensed physician and or psychologist must accompany this form or be filed in the consumer record).
		Documentation attached? ○ Yes ○ No Diagnosis on file? ○ Yes ○ No
○	○	(2) Did the disability resulting from the diagnosed condition manifest before the consumer's 22nd birthday?
○	○	(3) Is the disability resulting from the consumer's condition expected to continue indefinitely?
○	○	(4) Could the consumer benefit from services and supports specifically designed to promote the acquisition of skills or to decrease or prevent the regression of skills in the areas of substantial functional limitations where identified (specialized habilitative services e.t. CAFS, early intervention, behavioral modification (ABA), Occupation therapy, Physical therapy, Speech therapy, and day programming)?

3

Consumers ages 16 and older: Complete Worksheet D **(Save Changes before clicking)** for ages 16 and older. Check the areas below:	
☐	Capacity for independent living
☐	Communication
☐	Economic self-sufficiency
☐	Learning
☐	Mobility
☐	Personal Care (Self Care)
☐	Self Direction

SECTION H: PSYCHO-SOCIAL STATUS: Explain how deficits/identified concerns interfere with functioning. Describe behavior(s) and when applicable, describe the level of supervision necessary to prevent harm.

Disoriented to person/place/time	☐	Confusion	☐	Sleep Difficulties	☐
Social isolation	☐	Exhibits Bizarre Behavior	☐	Depression	☐
Restlessness	☐	Psycho-motor retardation	☐	Hallucinations	☐
Hyperactive	☐	Indications of Verbal/Physical Abuse	☐	Paranoia	☐
Inappropriate fears, suspicions	☐	Delusions	☐	Obsessions	☐
Compulsions	☐	Rages	☐	Agitation	☐
Mood Swings	☐	Wanders: Mentally	☐	Suicidal Ideation/past attempts	☐
Forgetfulness: Long Term/Short Term	☐	Wanders: Physically	☐	Feels extremely sad	☐
Speech Deficit	☐	Self-Abuse/Self-Neglect	☐	Unable to read/write	☐
Has difficulty hearing	☐	Inability to make decisions	☐	Feels irritable with people	☐
Feels impatient with people	☐			Other	☐

Within the past 24 months how many times has the consumer required emergency mental health services: Zero
Narrative:

SECTION I: SAFETY AND COGNITION**		
YES	NO	
☐	☐	Can the consumer make his wants and needs known?
☐	☐	Do any of the psychosocial behaviors identified above interfere with the consumers ability to participate in the development of a plan of care?
☐	☐	Does the consumer require 24-hour awake direct supervision to prevent harm due to a cognitive impairment? If yes, explain:
☐	☐	Does the consumer require less than 24-hour awake direct supervision to prevent harm due to a cognitive impairment? If yes, explain:
		For how many hours can the consumer remain safely alone without a caregiver? 0
Please Explain:		

SECTION J: ENVIRONMENTAL						
☐ House	☐ Trailer	☐ Apartment	☐ Duplex	☐ 1 Story	☐ 2 Story	☐ 3 Story
☐ Own	☐ Rent	☐ List name of Property owner/contact:				

Internal Environment	Acceptable	Repair/Safety Issue Identified	Accessibility Issue Identified	Comments
Enter/Exit Home	☐	☐	☐	
Kitchen	☐	☐	☐	
Bathroom(s)	☐	☐	☐	
Bedroom	☐	☐	☐	
Living Room	☐	☐	☐	
Electrical	☐	☐	☐	
Plumbing	☐	☐	☐	
Floors	☐	☐	☐	
Stairs	☐	☐	☐	
Cleanliness	☐	☐	☐	
Windows	☐	☐	☐	
Heating/Cooling	☐	☐	☐	

Safety Issues:	Acceptable	Safety or Educational Issue Identified	Comments
a. Cords/plugs/outlets	☐	☐	
b. Back up care plan/giver	☐	☐	
c. Power Loss	☐	☐	
d. Adequate lighting	☐	☐	
e. Fire plan	☐	☐	
f. Smoke alarm	☐	☐	

SECTION K: CURRENT ADAPTIVE/ASSISTIVE EQUIPMENT List Company and note if lease or own. ☐ Check if N/A					
Bed:	☐ H20	☐ Hospital	☐ Electric	☐ Flotation	☐ Other:
☐ Lease	☐ Own	Company:			
Lift:	☐ Hoyer	☐ Van	☐ Stair	☐ Tub	
☐ Lease	☐ Own	Company:			
Bathroom	☐ Grab Rails	☐ Shower or tub chair	☐ Hand-held shower	☐ Adapted toilet seat	
☐ Lease	☐ Own	Company:			
Ambulation related:	☐ Cane	☐ Crutches	☐ Walker	☐ Scooter	
☐ Lease	☐ Own	Company:			
☐ Wheelchair:		☐ Electric	☐ Conventional	☐ Adapted	
☐ Lease	☐ Own	Company:			
☐ Ramp:		☐ Temporary	☐ Permanent		
☐ Lease	☐ Own	Company:			
☐ Other:					
Equipment Needed ☐ check if NA OR specify the need below Describe Equipment Need:		Comments And/Or Identify Available Resources:			

SECTION L: INFORMAL SUPPORTS ☐ Check if not applicable					
Primary Caregiver Information ○ N/A ○ Present ○ Not Present Name: Address: ☐ same as individual , County: Phone: ☐ same as individual Legal Guardian ○ Y ○ N POA ○ Y					
Relationship	Choose	Age		Gender ☐ Male ☐ Female	Average Caregiving hours/week:
Employment:	☐ Employed	☐ Part-time	☐ Full-time	☐ Unemployed	☐ Retired
A. Special Caregiver education/training:			☐ N/A	☐ Received	☐ Needed
B. Caregiver's self report of emotional well being:			○ Excellent	○ Good ○ Fair	○ Poor
C. Caregiver's self report of physical health			○ Excellent	○ Good ○ Fair	○ Poor
D. Length of time as primary caregiver:			☐ Years 0 Months		
F. Ability to continue caregiving:			○ Same	○ More ○ Less	○ Not At All
Comments:					

TYPE AND FREQUENCY OF SERVICES BEING PROVIDED BY ALL VOLUNTARY CAREGIVER/INFORMAL SUPPORTS COMBINED (Complete for consumer 16 years and older)					
Current Services	Hours Per Week	By Whom	Current Services	Hours Per Week	By Whom
Personal Care			Transportation		
Meal Preparation			Shopping		
Laundry			Money Management		
Homemaking			Skilled Services		
Other (list):					
Other (list):					

SECTION M: FORMAL SUPPORT SERVICES: Services currently being provided by paid Caregiver(s). This includes consumers of all ages. ☐ Check if not applicable			
Name and type of service(s) provided. List agency or individual name(s) including phone and fax numbers for initial applications	Hours per week	Funding Source Private pay, Medicaid, Medicare, Insurance, etc)	Existing
Name: Phone: Fax: Service:			
Name: Phone: Fax: Service:			
Name: Phone: Fax: Service:			
Name: Phone: Fax: Service:			
Name: Phone: Fax: Service:			

Is consumer able to supervise and direct his/her care? ○ Yes ○ NO (Explain):

Can needs be safely met in consumer's current living situation? ○ Yes ○ NO (Explain):

Before CMA approval, are there issues that must be addressed in order for consumer's needs to be safely met?

○ No ○ YES (Explain):

Would the consumer require institutionalization in a hospital or nursing facility if services were no longer available in the home and/or community? If yes, give a brief explanation: ○ Yes ○ NO

Choose...

12

APPENDIX F

4/2010

```
GET
  FILE='E:\WSU\SMartin\SMartin data for SPSS 12012009.sav'.
LOGISTIC REGRESSION VARIABLES ScreenR
  /METHOD=BSTEP(COND) AGE TotADL Rural AfricanAmerican MarriedCurr TPI
  /CONTRAST (Rural)=Indicator(1)
  /CONTRAST (AfricanAmerican)=Indicator(1)
  /CONTRAST (MarriedCurr)=Indicator(1)
  /CONTRAST (TPI)=Indicator(1)
  /PRINT=GOODFIT CI(95)
  /CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).
```

Logistic Regression

[DataSet1] E:\WSU\SMartin\SMartin data for SPSS 12012009.sav

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	342	97.7
	Missing Cases	8	2.3
	Total	350	100.0
Unselected Cases		0	.0
Total		350	100.0

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding

Original Value	Internal Value
No	0
Yes	1

Categorical Variables Codings

		Frequency	Parameter coding (1)
TPI	No	304	.000
	Yes	38	1.000
AfricanAmerican	Caucasian	253	.000
	African American	89	1.000
MarriedCurr	No	296	.000
	Yes	46	1.000
Rural	Urban	235	.000
	Rural	107	1.000

Block 0: Beginning Block

Classification Table[a,b]

Observed			Predicted: Cervical Cancer Screen w/in 3 Yrs	
			No	Yes
Step 0	Cervical Cancer Screen w/in 3 Yrs	No	187	0
		Yes	155	0
	Overall Percentage			

a. Constant is included in the model.

b. The cut value is .500

Classification Table[a,b]

Observed			Predicted: Percentage Correct
Step 0	Cervical Cancer Screen w/in 3 Yrs	No	100.0
		Yes	.0
	Overall Percentage		54.7

a. Constant is included in the model.

b. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-.188	.109	2.985	1	.084	.829

Variables not in the Equation

			Score	df	Sig.
Step 0	Variables	AGE	2.285	1	.131
		TotADL	5.185	1	.023
		Rural(1)	.675	1	.411
		AfricanAmerican(1)	.823	1	.364
		MarriedCurr(1)	.135	1	.714
		TPI(1)	2.727	1	.099
	Overall Statistics		14.808	6	.022

Block 1: Method = Backward Stepwise (Conditional)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	15.136	6	.019
	Block	15.136	6	.019
	Model	15.136	6	.019
Step 2[a]	Step	-.147	1	.701
	Block	14.989	5	.010
	Model	14.989	5	.010
Step 3[a]	Step	-1.540	1	.215
	Block	13.449	4	.009
	Model	13.449	4	.009
Step 4[a]	Step	-1.427	1	.232
	Block	12.022	3	.007
	Model	12.022	3	.007

a. A negative Chi-squares value indicates that the Chi-squares value has decreased from the previous step.

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	455.978[a]	.043	.058
2	456.125[a]	.043	.057
3	457.665[a]	.039	.052
4	459.092[a]	.035	.046

a. Estimation terminated at iteration number 3 because parameter estimates changed by less than .001.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	8.347	8	.400
2	6.448	8	.597
3	4.505	8	.809
4	2.461	8	.964

Contingency Table for Hosmer and Lemeshow Test

		Cervical Cancer Screen w/in 3 Yrs = No		Cervical Cancer Screen w/in 3 Yrs = Yes		
		Observed	Expected	Observed	Expected	Total
Step 1	1	22	24.301	12	9.699	34
	2	20	22.139	14	11.861	34
	3	25	20.926	9	13.074	34
	4	20	20.058	14	13.942	34
	5	17	19.282	17	14.718	34
	6	19	18.482	15	15.518	34
	7	18	17.574	16	16.426	34
	8	22	16.599	12	17.401	34
	9	13	15.114	21	18.886	34
	10	11	12.525	25	23.475	36
Step 2	1	22	24.260	12	9.740	34
	2	22	22.098	12	11.902	34
	3	25	21.559	10	13.441	35
	4	18	20.587	17	14.413	35
	5	20	19.277	14	14.723	34
	6	18	18.965	17	16.035	35
	7	16	17.476	18	16.524	34
	8	22	16.999	13	18.001	35
	9	14	14.885	20	19.115	34
	10	10	10.894	22	21.106	32
Step 3	1	23	23.919	11	10.081	34
	2	18	21.780	16	12.220	34
	3	24	20.836	10	13.164	34
	4	19	20.018	15	13.982	34
	5	18	19.312	16	14.688	34
	6	20	19.026	15	15.974	35
	7	20	17.659	14	16.341	34
	8	18	17.215	17	17.785	35
	9	16	15.321	18	18.679	34
	10	11	11.914	23	22.086	34

Contingency Table for Hosmer and Lemeshow Test

		Cervical Cancer Screen w/in 3 Yrs = No		Cervical Cancer Screen w/in 3 Yrs = Yes		
		Observed	Expected	Observed	Expected	Total
Step 4	1	25	24.956	11	11.044	36
	2	20	21.640	14	12.360	34
	3	19	21.275	16	13.725	35
	4	22	20.390	13	14.610	35
	5	18	19.106	16	14.894	34
	6	17	17.367	15	14.633	32
	7	18	16.669	14	15.331	32
	8	17	16.387	16	16.613	33
	9	18	15.548	16	18.452	34
	10	13	13.663	24	23.337	37

Classification Table[a]

			Predicted	
			Cervical Cancer Screen w/in 3 Yrs	
	Observed		No	Yes
Step 1	Cervical Cancer Screen w/in 3 Yrs	No	142	45
		Yes	97	58
	Overall Percentage			
Step 2	Cervical Cancer Screen w/in 3 Yrs	No	139	48
		Yes	100	55
	Overall Percentage			
Step 3	Cervical Cancer Screen w/in 3 Yrs	No	144	43
		Yes	101	54
	Overall Percentage			
Step 4	Cervical Cancer Screen w/in 3 Yrs	No	148	39
		Yes	104	51
	Overall Percentage			

a. The cut value is .500

Classification Table[a]

Observed			Predicted: Percentage Correct
Step 1	Cervical Cancer Screen w/in 3 Yrs	No	75.9
		Yes	37.4
	Overall Percentage		58.5
Step 2	Cervical Cancer Screen w/in 3 Yrs	No	74.3
		Yes	35.5
	Overall Percentage		56.7
Step 3	Cervical Cancer Screen w/in 3 Yrs	No	77.0
		Yes	34.8
	Overall Percentage		57.9
Step 4	Cervical Cancer Screen w/in 3 Yrs	No	79.1
		Yes	32.9
	Overall Percentage		58.2

a. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	AGE	-.019	.010	3.574	1	.059	.981
	TotADL	-.220	.083	7.098	1	.008	.802
	Rural(1)	.308	.259	1.410	1	.235	1.360
	AfricanAmerican(1)	.429	.278	2.369	1	.124	1.535
	MarriedCurr(1)	.129	.337	.147	1	.701	1.138
	TPI(1)	.632	.374	2.863	1	.091	1.882
	Constant	1.294	.655	3.904	1	.048	3.647
Step 2[a]	AGE	-.019	.010	3.434	1	.064	.982
	TotADL	-.218	.082	6.977	1	.008	.805
	Rural(1)	.319	.257	1.538	1	.215	1.376
	AfricanAmerican(1)	.433	.278	2.428	1	.119	1.542
	TPI(1)	.658	.368	3.198	1	.074	1.931
	Constant	1.261	.649	3.775	1	.052	3.530
Step 3[a]	AGE	-.019	.010	3.510	1	.061	.981
	TotADL	-.222	.082	7.311	1	.007	.801
	AfricanAmerican(1)	.309	.259	1.425	1	.233	1.362
	TPI(1)	.620	.365	2.884	1	.089	1.858
	Constant	1.424	.635	5.025	1	.025	4.155

a. Variable(s) entered on step 1: AGE, TotADL, Rural, AfricanAmerican, MarriedCurr, TPI.

Variables in the Equation

		95% C.I.for EXP(B)	
		Lower	Upper
Step 1[a]	AGE	.962	1.001
	TotADL	.682	.943
	Rural(1)	.819	2.261
	AfricanAmerican(1)	.889	2.650
	MarriedCurr(1)	.588	2.202
	TPI(1)	.905	3.915
	Constant		
Step 2[a]	AGE	.963	1.001
	TotADL	.685	.945
	Rural(1)	.831	2.279
	AfricanAmerican(1)	.894	2.660
	TPI(1)	.939	3.971
	Constant		
Step 3[a]	AGE	.962	1.001
	TotADL	.682	.941
	AfricanAmerican(1)	.820	2.261
	TPI(1)	.909	3.799
	Constant		

a. Variable(s) entered on step 1: AGE, TotADL, Rural, AfricanAmerican, MarriedCurr, TPI.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 4[a]	AGE	-.016	.010	2.796	1	.094	.984
	TotADL	-.225	.082	7.562	1	.006	.798
	TPI(1)	.609	.363	2.808	1	.094	1.839
	Constant	1.397	.633	4.872	1	.027	4.043

a. Variable(s) entered on step 1: AGE, TotADL, Rural, AfricanAmerican, MarriedCurr, TPI.

Variables in the Equation

		95% C.I.for EXP(B)	
		Lower	Upper
Step 4[a]	AGE	.965	1.003
	TotADL	.680	.937
	TPI(1)	.902	3.748
	Constant		

a. Variable(s) entered on step 1: AGE, TotADL, Rural, AfricanAmerican, MarriedCurr, TPI.

Model if Term Removed[a]

Variable		Model Log Likelihood	Change in -2 Log Likelihood	df	Sig. of the Change
Step 1	AGE	-229.800	3.621	1	.057
	TotADL	-231.657	7.337	1	.007
	Rural	-228.695	1.412	1	.235
	AfricanAmerican	-229.178	2.379	1	.123
	MarriedCurr	-228.063	.147	1	.701
	TPI	-229.442	2.906	1	.088
Step 2	AGE	-229.802	3.479	1	.062
	TotADL	-231.666	7.207	1	.007
	Rural	-228.833	1.540	1	.215
	AfricanAmerican	-229.281	2.438	1	.118
	TPI	-229.688	3.251	1	.071
Step 3	AGE	-230.611	3.557	1	.059
	TotADL	-232.615	7.566	1	.006
	AfricanAmerican	-229.546	1.427	1	.232
	TPI	-230.295	2.925	1	.087
Step 4	AGE	-230.958	2.823	1	.093
	TotADL	-233.458	7.824	1	.005
	TPI	-230.970	2.847	1	.092

a. Based on conditional parameter estimates

Variables not in the Equation

			Score	df	Sig.
Step 2[a]	Variables	MarriedCurr(1)	.147	1	.701
	Overall Statistics		.147	1	.701
Step 3[b]	Variables	Rural(1)	1.542	1	.214
		MarriedCurr(1)	.276	1	.599
	Overall Statistics		1.689	2	.430
Step 4[c]	Variables	Rural(1)	.531	1	.466
		AfricanAmerican(1)	1.430	1	.232
		MarriedCurr(1)	.280	1	.596
	Overall Statistics		3.110	3	.375

a. Variable(s) removed on step 2: MarriedCurr.

b. Variable(s) removed on step 3: Rural.

c. Variable(s) removed on step 4: AfricanAmerican.

```
LOGISTIC REGRESSION VARIABLES ScreenR
  /METHOD=BSTEP(COND) AGE TotADL Rural AfricanAmerican MarriedCurr TPI
  /CONTRAST (Rural)=Indicator(1)
```

```
/CONTRAST (AfricanAmerican)=Indicator(1)
/CONTRAST (MarriedCurr)=Indicator(1)
/CONTRAST (TPI)=Indicator(1)
/PRINT=GOODFIT CI(90)
/CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).
```

Logistic Regression

```
[DataSet1] E:\WSU\SMartin\SMartin data for SPSS 12012009.sav
```

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	342	97.7
	Missing Cases	8	2.3
	Total	350	100.0
Unselected Cases		0	.0
Total		350	100.0

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding

Original Value	Internal Value
No	0
Yes	1

Categorical Variables Codings

		Frequency	Parameter coding (1)
TPI	No	304	.000
	Yes	38	1.000
AfricanAmerican	Caucasian	253	.000
	African American	89	1.000
MarriedCurr	No	296	.000
	Yes	46	1.000
Rural	Urban	235	.000
	Rural	107	1.000

Block 0: Beginning Block

Classification Table[a,b]

Observed			Predicted	
			Cervical Cancer Screen w/in 3 Yrs	
			No	Yes
Step 0	Cervical Cancer Screen w/in 3 Yrs	No	187	0
		Yes	155	0
	Overall Percentage			

a. Constant is included in the model.

b. The cut value is .500

Classification Table[a,b]

Observed			Predicted	
			Percentage Correct	
Step 0	Cervical Cancer Screen w/in 3 Yrs	No	100.0	
		Yes	.0	
	Overall Percentage		54.7	

a. Constant is included in the model.

b. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-.188	.109	2.985	1	.084	.829

Variables not in the Equation

			Score	df	Sig.
Step 0	Variables	AGE	2.285	1	.131
		TotADL	5.185	1	.023
		Rural(1)	.675	1	.411
		AfricanAmerican(1)	.823	1	.364
		MarriedCurr(1)	.135	1	.714
		TPI(1)	2.727	1	.099
	Overall Statistics		14.808	6	.022

Block 1: Method = Backward Stepwise (Conditional)

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	15.136	6	.019
	Block	15.136	6	.019
	Model	15.136	6	.019
Step 2[a]	Step	-.147	1	.701
	Block	14.989	5	.010
	Model	14.989	5	.010
Step 3[a]	Step	-1.540	1	.215
	Block	13.449	4	.009
	Model	13.449	4	.009
Step 4[a]	Step	-1.427	1	.232
	Block	12.022	3	.007
	Model	12.022	3	.007

a. A negative Chi-squares value indicates that the Chi-squares value has decreased from the previous step.

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	455.978[a]	.043	.058
2	456.125[a]	.043	.057
3	457.665[a]	.039	.052
4	459.092[a]	.035	.046

a. Estimation terminated at iteration number 3 because parameter estimates changed by less than .001.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	8.347	8	.400
2	6.448	8	.597
3	4.505	8	.809
4	2.461	8	.964

Contingency Table for Hosmer and Lemeshow Test

		Cervical Cancer Screen w/in 3 Yrs = No		Cervical Cancer Screen w/in 3 Yrs = Yes		
		Observed	Expected	Observed	Expected	Total
Step 1	1	22	24.301	12	9.699	34
	2	20	22.139	14	11.861	34
	3	25	20.926	9	13.074	34
	4	20	20.058	14	13.942	34
	5	17	19.282	17	14.718	34
	6	19	18.482	15	15.518	34
	7	18	17.574	16	16.426	34
	8	22	16.599	12	17.401	34
	9	13	15.114	21	18.886	34
	10	11	12.525	25	23.475	36
Step 2	1	22	24.260	12	9.740	34
	2	22	22.098	12	11.902	34
	3	25	21.559	10	13.441	35
	4	18	20.587	17	14.413	35
	5	20	19.277	14	14.723	34
	6	18	18.965	17	16.035	35
	7	16	17.476	18	16.524	34
	8	22	16.999	13	18.001	35
	9	14	14.885	20	19.115	34
	10	10	10.894	22	21.106	32
Step 3	1	23	23.919	11	10.081	34
	2	18	21.780	16	12.220	34
	3	24	20.836	10	13.164	34
	4	19	20.018	15	13.982	34
	5	18	19.312	16	14.688	34
	6	20	19.026	15	15.974	35
	7	20	17.659	14	16.341	34
	8	18	17.215	17	17.785	35
	9	16	15.321	18	18.679	34
	10	11	11.914	23	22.086	34

Contingency Table for Hosmer and Lemeshow Test

		Cervical Cancer Screen w/in 3 Yrs = No		Cervical Cancer Screen w/in 3 Yrs = Yes		
		Observed	Expected	Observed	Expected	Total
Step 4	1	25	24.956	11	11.044	36
	2	20	21.640	14	12.360	34
	3	19	21.275	16	13.725	35
	4	22	20.390	13	14.610	35
	5	18	19.106	16	14.894	34
	6	17	17.367	15	14.633	32
	7	18	16.669	14	15.331	32
	8	17	16.387	16	16.613	33
	9	18	15.548	16	18.452	34
	10	13	13.663	24	23.337	37

Classification Table[a]

			Predicted	
			Cervical Cancer Screen w/in 3 Yrs	
	Observed		No	Yes
Step 1	Cervical Cancer Screen w/in 3 Yrs	No	142	45
		Yes	97	58
	Overall Percentage			
Step 2	Cervical Cancer Screen w/in 3 Yrs	No	139	48
		Yes	100	55
	Overall Percentage			
Step 3	Cervical Cancer Screen w/in 3 Yrs	No	144	43
		Yes	101	54
	Overall Percentage			
Step 4	Cervical Cancer Screen w/in 3 Yrs	No	148	39
		Yes	104	51
	Overall Percentage			

a. The cut value is .500

Classification Table[a]

Observed			Predicted: Percentage Correct
Step 1	Cervical Cancer Screen w/in 3 Yrs	No	75.9
		Yes	37.4
	Overall Percentage		58.5
Step 2	Cervical Cancer Screen w/in 3 Yrs	No	74.3
		Yes	35.5
	Overall Percentage		56.7
Step 3	Cervical Cancer Screen w/in 3 Yrs	No	77.0
		Yes	34.8
	Overall Percentage		57.9
Step 4	Cervical Cancer Screen w/in 3 Yrs	No	79.1
		Yes	32.9
	Overall Percentage		58.2

a. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	AGE	-.019	.010	3.574	1	.059	.981
	TotADL	-.220	.083	7.098	1	.008	.802
	Rural(1)	.308	.259	1.410	1	.235	1.360
	AfricanAmerican(1)	.429	.278	2.369	1	.124	1.535
	MarriedCurr(1)	.129	.337	.147	1	.701	1.138
	TPI(1)	.632	.374	2.863	1	.091	1.882
	Constant	1.294	.655	3.904	1	.048	3.647
Step 2[a]	AGE	-.019	.010	3.434	1	.064	.982
	TotADL	-.218	.082	6.977	1	.008	.805
	Rural(1)	.319	.257	1.538	1	.215	1.376
	AfricanAmerican(1)	.433	.278	2.428	1	.119	1.542
	TPI(1)	.658	.368	3.198	1	.074	1.931
	Constant	1.261	.649	3.775	1	.052	3.530
Step 3[a]	AGE	-.019	.010	3.510	1	.061	.981
	TotADL	-.222	.082	7.311	1	.007	.801
	AfricanAmerican(1)	.309	.259	1.425	1	.233	1.362
	TPI(1)	.620	.365	2.884	1	.089	1.858
	Constant	1.424	.635	5.025	1	.025	4.155

a. Variable(s) entered on step 1: AGE, TotADL, Rural, AfricanAmerican, MarriedCurr, TPI.

Variables in the Equation

		90% C.I.for EXP(B)	
		Lower	Upper
Step 1[a]	AGE	.965	.998
	TotADL	.700	.919
	Rural(1)	.888	2.083
	AfricanAmerican(1)	.971	2.427
	MarriedCurr(1)	.654	1.980
	TPI(1)	1.018	3.480
	Constant		
Step 2[a]	AGE	.966	.998
	TotADL	.703	.921
	Rural(1)	.901	2.101
	AfricanAmerican(1)	.976	2.437
	TPI(1)	1.054	3.536
	Constant		
Step 3[a]	AGE	.965	.998
	TotADL	.700	.917
	AfricanAmerican(1)	.890	2.084
	TPI(1)	1.020	3.387
	Constant		

a. Variable(s) entered on step 1: AGE, TotADL, Rural, AfricanAmerican, MarriedCurr, TPI.

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 4[a]	AGE	-.016	.010	2.796	1	.094	.984
	TotADL	-.225	.082	7.562	1	.006	.798
	TPI(1)	.609	.363	2.808	1	.094	1.839
	Constant	1.397	.633	4.872	1	.027	4.043

a. Variable(s) entered on step 1: AGE, TotADL, Rural, AfricanAmerican, MarriedCurr, TPI.

Variables in the Equation

		90% C.I.for EXP(B)	
		Lower	Upper
Step 4[a]	AGE	.968	1.000
	TotADL	.698	.914
	TPI(1)	1.011	3.343
	Constant		

a. Variable(s) entered on step 1: AGE, TotADL, Rural, AfricanAmerican, MarriedCurr, TPI.

Model if Term Removed[a]

Variable		Model Log Likelihood	Change in -2 Log Likelihood	df	Sig. of the Change
Step 1	AGE	-229.800	3.621	1	.057
	TotADL	-231.657	7.337	1	.007
	Rural	-228.695	1.412	1	.235
	AfricanAmerican	-229.178	2.379	1	.123
	MarriedCurr	-228.063	.147	1	.701
	TPI	-229.442	2.906	1	.088
Step 2	AGE	-229.802	3.479	1	.062
	TotADL	-231.666	7.207	1	.007
	Rural	-228.833	1.540	1	.215
	AfricanAmerican	-229.281	2.438	1	.118
	TPI	-229.688	3.251	1	.071
Step 3	AGE	-230.611	3.557	1	.059
	TotADL	-232.615	7.566	1	.006
	AfricanAmerican	-229.546	1.427	1	.232
	TPI	-230.295	2.925	1	.087
Step 4	AGE	-230.958	2.823	1	.093
	TotADL	-233.458	7.824	1	.005
	TPI	-230.970	2.847	1	.092

a. Based on conditional parameter estimates

Variables not in the Equation

			Score	df	Sig.
Step 2[a]	Variables	MarriedCurr(1)	.147	1	.701
	Overall Statistics		.147	1	.701
Step 3[b]	Variables	Rural(1)	1.542	1	.214
		MarriedCurr(1)	.276	1	.599
	Overall Statistics		1.689	2	.430
Step 4[c]	Variables	Rural(1)	.531	1	.466
		AfricanAmerican(1)	1.430	1	.232
		MarriedCurr(1)	.280	1	.596
	Overall Statistics		3.110	3	.375

a. Variable(s) removed on step 2: MarriedCurr.

b. Variable(s) removed on step 3: Rural.

c. Variable(s) removed on step 4: AfricanAmerican.